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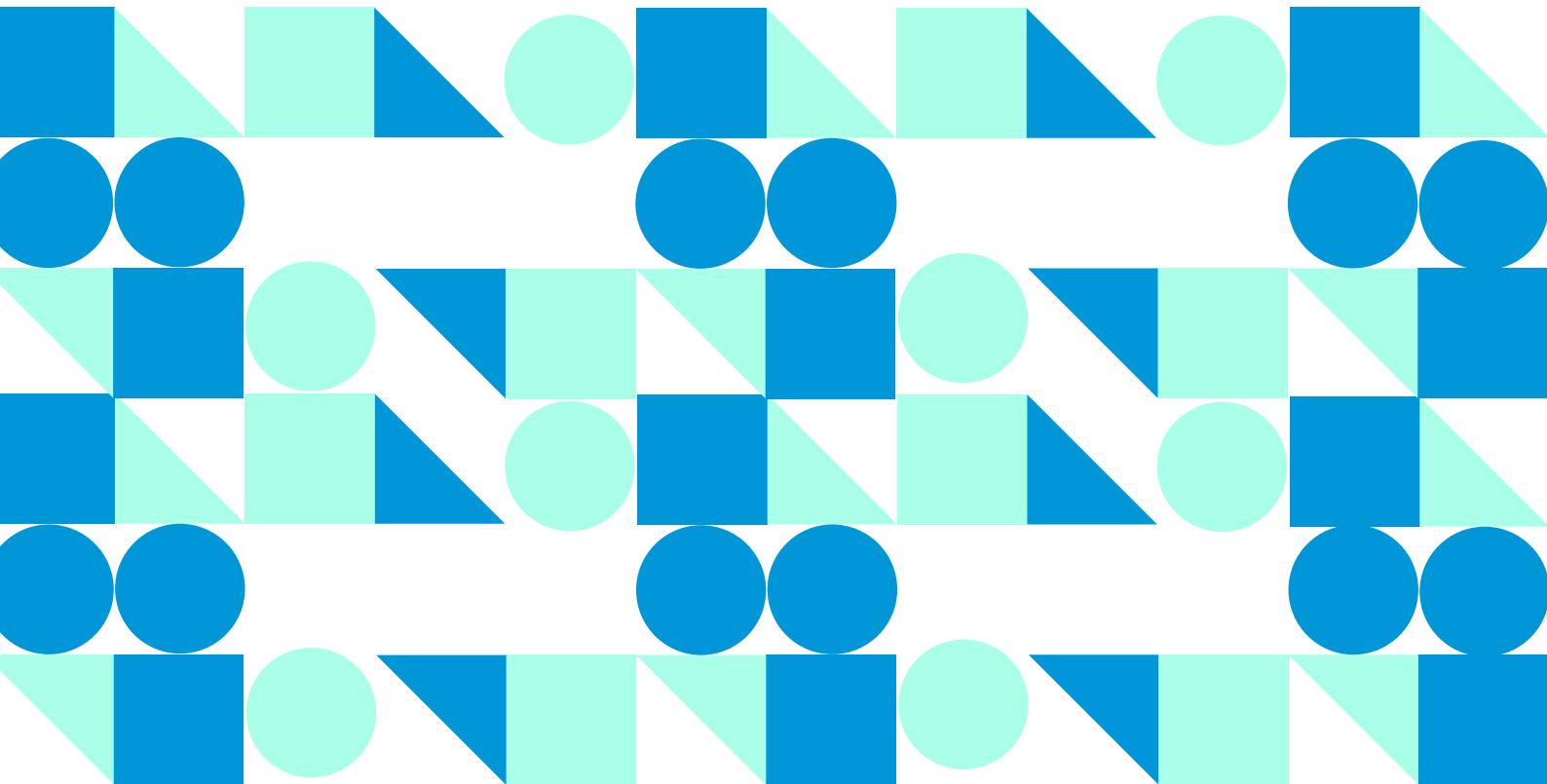
Research paper

On the way to 2020: data for vocational education and training policies

Indicator overviews
2019 update



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The **European Centre for the Development of Vocational Training** (Cedefop) is the European Union's reference centre for vocational education and training, skills and qualifications. We provide information, research, analyses and evidence on vocational education and training, skills and qualifications for policy-making in the EU Member States.
Cedefop was originally established in 1975 by Council Regulation (EEC) No 337/75. This decision was repealed in 2019 by Regulation (EU) 2019/128 establishing Cedefop as a Union Agency with a renewed mandate.

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Foreword

This report provides an update of Cedefop's statistical overview of vocational education and training (VET) and lifelong learning in European countries. It brings together and updates statistical evidence from the main international data sources relevant to this field.

The report results from Cedefop work on increasing the availability, quality, use and analysis of VET-related data. It considers 36 internationally comparable indicators, focusing on skill development through initial and continuing VET, adult education and training, and their broader education and labour market context. Data were selected based on their relevance, quality and periodicity. To reflect and align with policy-relevant themes, they have been organised in three main domains: access, attractiveness and flexibility; skill development and labour market relevance; and overall transition and employment trends.

Data are considered for the most recent year available and, where possible, they are compared with those for 2015. This is done to provide indications on policy-relevant areas and progress, following the adoption of the Riga conclusions and in the wider context of the policy outlined in the Bruges communiqué. A concise analysis is provided for each indicator, including relevance and definition of the indicator itself, main findings, a table, and a chart.

VET policy needs to be informed and supported by robust and internationally comparable statistics and indicators at EU and national levels. This report contributes to a better understanding of systems and progress across EU countries in reforming VET. We are confident that many readers, policy-makers, analysts, researchers and practitioners will find it a useful resource.

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Executive Director

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Head of department for skills and labour market

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Introduction

Aim

European policy-making and analysis in vocational education and training (VET) need to be informed and supported by sound qualitative and quantitative information.

This report is a follow up to Cedefop publications *On the way to 2020: data for vocational education and training policies: indicator overviews* (Cedefop, 2013) and *On the way to 2020: data for vocational education and training policies: country statistical overviews – 2016 update* (Cedefop, 2017a). It updates and complements a concise set of core statistical indicators, quantifying key aspects of VET and lifelong learning to help describe, monitor and compare European countries and their progress.

The indicators, selected for their policy relevance as well as their importance for achieving the objectives of the Europe 2020 strategy, have been updated. They now incorporate new hard evidence from the European statistical system, including the latest rounds of the continuing vocational training survey, the adult education survey and community innovation survey, as well as most recent updates from the EU labour force survey and the UOE ([1]) data collection on education systems. Latest data from Cedefop skills supply and demand forecasts and from the Eurofound European working conditions survey are also considered.

Taking 2015 as the baseline year, to coincide with the adoption of the Riga conclusions (ministers responsible for vocational education and training of countries participating in the Copenhagen process, European social partners, European Commission, 2015), the 36 indicators are published as 'indicator overviews'. The format is intended to be easy to use and data are supplemented with a commentary highlighting key points for each indicator. To the extent allowed by data availability, each indicator overview presents updated data for the European Union (EU), the 28 EU Member States, Iceland, North Macedonia, Norway, Switzerland and Turkey, also considering changes over time

The core indicators do not claim to assess national systems or policies. Statistics have their limitations: they can oversimplify complex issues. To be understood properly they must be read in context and there are inevitable time lags. The core indicators are headline figures for summary overviews. Detailed monitoring requires much more data, detailed breakdowns and thorough analysis.

([1]) UNESCO, OECD and Eurostat (UOE).

Selecting and grouping core indicators

The key questions for any framework of indicators are what they should show and which data sources to use. Their selection here is driven by policy relevance as well as data availability, periodicity, comparability and quality. European VET policy objectives, priorities and benchmarks are wide-ranging (see box) and, to an extent, evolving over time. Context issues that influence VET, such as demographic trends, general education and labour market and socioeconomic situations, are also important.

European VET policy: quantitative benchmarks and qualitative priorities

Needing to modernise education and training systems, the European Union (EU) launched the Copenhagen process in 2002 to strengthen cooperation in VET. To build on progress, in 2010, at Bruges, the European Commission, the Member States and social partners established a new framework for European VET policy for 2011-20, with qualitative priorities to support the Europe 2020 ([a]) strategy for smart, sustainable and inclusive growth. The European strategy also provides for a number of quantitative benchmarks.

Quantitative benchmarks

The quantitative benchmarks are target EU averages for 2020: they are not national goals. Member States consider how and to what extent they can contribute to their collective achievement. Accordingly, Member States can also set their own national targets for 2020 ([b]).

Europe 2020 benchmarks for employment, education and training are:

- an employment rate of at least 75% for 20 to 64 year-olds;
- early leavers from education and training should be less than 10%;
- at least 40% of 30 to 34 year-olds should complete tertiary-level education.

Quantitative benchmarks for education and training on the targets set in Education and training 2020 (Council of the European Union, 2009) are:

- at least 15% of adults should participate in lifelong learning ([c]);
- low-achieving 15-year-olds in reading, mathematics and science should be less than 15%;
- at least 95% of children between the age of four and starting compulsory primary education should participate in early childhood education;
- at least 40% of 30 to 34 year-olds should complete tertiary-level education ([d]);
- early leavers from education and training ([e]) should be less than 10%.

Other quantitative benchmarks agreed for 2020 (Council of the European Union, 2011; 2012) are:

- employed graduates (20 to 34 year-olds) leaving education and training no more than three years before the reference year should be at least 82% ([f]);
- at least 20% of higher education graduates should have a period of related study or training (including work placements) abroad ([g]);
- at least 6% of 18 to 34 year-olds with an initial VET qualification should have had a related study or training period (including work placements) ([h]).

Qualitative priorities

Europe 2020 and Education and Training 2020 also set priority areas which Member States agreed to work on improving. These were supplemented by the Bruges communiqué (European Ministers for vocational education and training, European social partners,

European Commission, 2010). The Bruges communiqué set out strategic objectives in VET for 2011-20 followed by 22 short-term deliverables, or intermediate objectives, for 2011-14, contributing to European goals for 2020. After a review of progress during 2011-14, a new set of five medium-term deliverables for 2015-20 was formulated in the Riga conclusions (Ministers responsible for vocational education and training of countries participating in the Copenhagen process, European social partners, European Commission, 2015). The qualitative priorities of European VET policy can be summarised as:

- making initial VET an attractive learning option with high relevance to labour market needs and pathways to higher education;
- easily accessible continuing VET for people in different life situations simplifying skill development and career changes;
- widening accessibility to VET making it more inclusive;
- flexible systems based on recognition of learning outcomes, including diplomas, and supporting individual learning pathways;
- supporting permeability and making it easier to move between different parts of the education and training system;
- cross-border mobility as an integral part of VET practice;
- skill development;
- strengthening key competences (European Parliament, Council of the European Union, 2006), including language learning ([i]) and entrepreneurship;
- promoting work-based learning;
- improving VET quality, including professional development of VET teachers, trainers and mentors and the use of quality assurance mechanisms;
- encouraging investment in VET;
- technological innovation;
- further developing quality assurance mechanisms in VET and establishing continuous information and feedback loops in IVET and CVET systems based on learning outcomes.

([a]) See *Europe 2020: a strategy for smart, sustainable and inclusive growth* (European Commission, 2010).

([b]) See http://ec.europa.eu/europe2020/pdf/targets_en.pdf

([c]) The percentage of the population aged 25 to 64 participating in education and training during the four weeks prior to the survey (Eurostat, labour force survey).

([d]) Percentage of those aged 30 to 34 who successfully completed tertiary-level education at ISCED levels 5-8 (Eurostat/UNESCO/OECD/Eurostat database).

([e]) The share of the population aged 18 to 24 with only lower secondary education or less and no longer in education or training (Eurostat, labour force survey).

([f]) Often referred to as the employability benchmark and measured as the share of the employed population aged 20 to 34 who have at least an educational attainment at upper secondary level, graduated up to three years before and are not currently enrolled in any further education or training activity (Eurostat, labour force survey).

([g]) The period of study or training should represent a minimum of 15 European credit transfer scheme credits or last a minimum of three months.

([h]) The period of study or training should last a minimum of two weeks, or less if documented by Europass.

([i]) Work continues to develop a language learning benchmark (Council of the Ministers responsible for higher education; 2009).

The New skills agenda (European Commission, 2016) also acknowledged the value and the role of VET. It promotes VET as a possible first choice to pursue the objectives of improving the quality and relevance of skills formation, making skills more

visible, improving skills intelligence and information for better career choices ([2]). The same occurred in the *Council recommendation on upskilling pathways: new opportunities for adults* (Council of the European Union, 2016)

These policy perspectives and context issues have been considered as key references for screening the European and international statistical infrastructure and its recent developments ([3]). Other technical factors have driven the selection of the indicators. First, the indicators should be expressed in quantitative statistical terms. Qualitative progress, for example legislative or other policy changes introduced by Member States to reform VET, is important but best covered in policy reports rather than a restricted set of indicators. Second, quantitative indicators should be based on available, comparable, periodical and good-quality data, which are suitable for monitoring. Third, the indicators should focus on VET and its contribution to European VET policy and Europe 2020 employment, education and training benchmarks. Fourth, their number should be limited, so generating a concise, easy to consult statistical product. Finally, the indicators should be complementary.

The list of core indicators considered in this publication is derived from background methodological work started in 2012; this has continued over time and was further intensified in 2016 and 2019, to account for the most recent developments in statistics. The number of indicators in this report is set at 36 ([4]). The definition of each core indicator and its data source are in the annex.

The core indicators do not have a one-to-one relationship with different policy themes; such a link is not always helpful as some themes overlap. Others are too complex to be reduced to one or two indicators while, for other themes, data are unavailable or of poor quality. Instead, to ensure their coherence and relevance to European VET policy as a whole, the core indicators have been grouped under the three broad headings discussed below.

Access, attractiveness and flexibility

Core indicators in this group cover participation in initial and continuing VET by various target groups, chosen as the best proxy for the attractiveness of VET as a learning option. Current data do not periodically capture the esteem associated with

([2]) European Commission (2016).

([3]) The European and international statistical infrastructure is understood here as the combination of data collections, surveys and related data production processes carried out at European and international levels to provide statistical information on VET and/or lifelong learning.

([4]) As a result of the background methodological work carried out in 2012, more than 140 ideal, quantitative or qualitative, indicators were identified. From the identified 140, 31 core indicators were initially selected with an additional one added in the second edition and another in the third. In this fourth edition one indicator has been dropped and four have been added, making a total of 36 indicators.

participating in initial VET, nor the extent to which students did not enrol in it even if they so wished. Indicators in this group also consider the extent to which students enrol in initial vocational programmes which combine work- and school- based components and the extent of enrolment in initial vocational programmes which provide direct access to tertiary education. They are used to provide some insight into policy relevant characteristics of initial VET systems, such as the role of work-based learning and permeability and flexibility of the systems. Indicators for initial VET consider school and work-based learning ([5]). The core indicators for continuing VET cover employer-sponsored training, both on courses and on the job. Participation in on-the-job training provides some insight into the flexibility of employers' training arrangements and the importance of work-based continuing training in enterprises. Participation in courses is further specified for workers of small enterprises ([6]).

Core indicators under this heading also include the proportion of enterprises providing training, giving a clearer picture of opportunities and participation.

Adult education and training is also a core indicator, as it is a specific European policy benchmark. Core indicators also consider particular breakdowns of participation rates by age, labour market status and educational attainment; these give an impression of how inclusive the VET system is and reflect policy priorities for adult learners (aged 25 to 64), the unemployed, those with low levels of education (ISCED 0-2) and older workers (aged 50 to 64) ([7]).

One indicator is included to account for the share of job-related learning carried out by adults as part of their non-formal education and training. Even though not expressed in headcount terms, and even though not properly accounting for the formal component, this is intended to provide an indication of the contribution of CVET to lifelong learning.

Skill developments and labour market relevance

This group includes core indicators on VET expenditure, the level of which can be related to the importance that governments, employers and individuals attribute to VET

([5]) The primary source of these data on initial VET is the annual UOE data collection. For work-based learning in initial VET, alternative sources, the continuing vocational training survey (CVTS) and the labour cost survey, which also provide figures on apprenticeships, were considered, but these are less frequent. CVTS3 and CVTS4 data on initial VET were not regarded as of sufficient quality for a core indicator. Expected possible developments in the European labour force survey may provide data on apprenticeships in the future, but they are not yet collected.

([6]) Although these are not the only forms of employer-provided training, courses and on-the-job training are the most important according to participation levels, as derived from the third and fourth continuing vocational training survey, which is the most relevant data source.

([7]) All indicators on lifelong learning come from the European labour force survey, which is currently the reference source for the benchmark.

as a means for developing skills. Such investment, although important, is difficult to measure accurately; available data do not provide a comprehensive and integrated picture of public, private and individual expenditure on VET. For instance, public expenditure on initial VET understates the contribution of employers, particularly in countries with dual system initial VET such as Germany. The core indicators on public expenditure on initial VET ([8]) and enterprise expenditure on continuing VET (training courses) ([9]) are the best available. This overview does not include specific figures on individual investment in VET. Being from different sources, available figures cannot be properly aggregated.

Other core indicators under this heading provide insights into VET's contribution to different types of learning and educational attainment. The skills covered by the core indicators are all of policy interest and relevance: studies of science, technology, engineering and maths subjects, language learning and technological innovation ([10]). One indicator specifically aims to reflect VET's contribution, particularly short-cycle tertiary VET contribution, to the Europe 2020 objective of raising tertiary level graduation ([11]).

The core indicators for labour market relevance focus on possible labour market benefits arising for those participating in initial and continuing VET.

Core indicators on the benefit of IVET consider employment rates of 20 to 34 year-old IVET graduates who are no longer in formal or non-formal education ([12]). Employment rates are preferred over more traditional unemployment rates; from a technical perspective, they reduce problems of sample sizes, and they are positive measures used for the European Commission's employability benchmark and the Europe 2020 employment benchmark. The age group selection and the exclusion of those in further formal or non-formal education and training are also in line with the employability benchmark. Data for young people better suit information needs related to the policy priority on transitions from school, work-based initial VET or other learning to work. Focus on the young may also give earlier indications of the impact of initial VET recent reform.

([8]) Data come from the UNESCO, OECD, Eurostat data collection on formal education (UOE).

([9]) Data come from the continuing vocational training survey.

([10]) Data on field of study and on language learning come from the UOE data collection and data on technological innovation come from the community innovation survey.

([11]) Due to unfavourable ISCED and European labour force survey developments, the indicator used had to be substituted in this edition.

([12]) Data have become available from the core section of the labour force survey, so they can be updated annually, and are published regularly by Eurostat on their website; the indicator has been fine-tuned in this edition. Previous editions only excluded those in further formal education and originated from Cedefop's calculations based on the 2009 ad hoc module of the European labour force survey.

Core indicators compare employment rates of initial VET graduates aged 20 to 34 with two groups of the same age; first with the employment rate of general education graduates and then with the employment rate of those with low levels of education. All the indicators exclude individuals in further formal or non-formal education and training. The aim of the comparisons is to examine any added value of studying initial VET compared to general education or leaving school early, somehow controlling for varying labour market conditions in different countries.

Core indicators under this heading also include the impact of continuing VET on a person's ability to perform their job, providing data on the extent to which workers believe that continuing VET has enabled them to do their job better. This indicator is preferred to that on training impact on career prospects, as other factors can affect them more than VET. The final indicator in this group looks at whether employees believe that they have the right skills for their job, to derive some idea about skill mismatch among workers ([13]).

Overall transitions and employment trends

Core indicators in this group do not relate strictly to VET, but more broadly to education, training and the labour market. They provide information on the context in which the VET system operates and in which VET can contribute to change. This is important from a policy perspective.

Core indicators here include other Europe 2020 benchmarks not covered elsewhere, such as early leavers from education and training, tertiary-level educational attainment for 30 to 34 year-olds, and adult employment rates. The benchmark on employment rate for young recent graduates (often referred to as the employability benchmark) is also considered here. These are complemented with indicators on other policy priorities such as the unemployment rate for the young, the proportion of 18 to 24 year-olds not in education, training or employment, as well as the proportion of the adult population with low education levels and their employment rate ([14]). A particular version of the youth unemployment rate is adopted: while it is generally calculated and presented for those aged 15 to 24, the rate selected here focuses on 20 to 34 year-olds. This is to done to extend the age group, also considering later entrance into the labour market due to increasingly longer stay in initial education and training, and to exclude the age group 15 to 19, where active labour market participation is relatively low (with many individuals in education and training). The final indicator in this group is the projected share of total employment, which covers individuals with medium- or high-level qualifications in 2030 ([15]).

([13]) Data are selected from the European working conditions survey.

([14]) All these indicators come from the European labour force survey.

([15]) Data from Cedefop's skills forecast.

Updating core indicators

From the 36 indicators used in the previous overview (Cedefop, 2017a), 30 reappear unchanged in the present update. Of these 30 indicators, new data are presented for 23; the other seven are based on data of the CVTS and EWCS for which the latest update took place in 2015. For six of the 36 indicators, changes were made to the data source or calculation method. In the following paragraphs, we give an overview of how these indicators diverge from the previous overview.

For indicators 1010 (IVET students as % of all upper secondary students) and 1070 (female IVET students as % of all female upper secondary students), the 2016 overview reported partial information for the Netherlands; these indicators could only be calculated for public school pupils in the country. There was no complete data available for all pupils in the time period before 2015. In the current indicator overview, this problem has been resolved for these two indicators and we report complete information for the Netherlands.

Due to methodological changes in the CVTS, it was necessary to adapt the operationalisation of indicator 1040 (workers participating in on-the-job training). The indicator considered in this update targets the same concept, but it is now based on data of the EWCS.

For indicator 2050 (STEM graduates from upper secondary IVET), ISCED-F-2013 classification is used in the UOE data collection. In the indicator overview of 2015, the ISCED-F-2011 classification was used. The main difference between the two classification methods for STEM is that ICT forms a separate field of education in ISCED-F-2013 (UNESCO, 2014) while it was integrated with sciences and mathematics in the previous version of the classification.

Indicator 2070 (innovative enterprises with supportive training practices) is calculated on CIS data of 2016. In 2016, several changes in the data structure of the CIS were undertaken. One of these was that the categories of the variable measuring type of innovation activity slightly changed compared to the previous data rounds of 2012 and 2014 (old: INNOACT; new: PRDPCS) (Eurostat, 2019, p. 6).

Finally, for indicator 3070 (medium/high-qualified employment in 2030), the year of reference in this data overview is 2030, while it was 2020 in the previous data overview.

Improving and complementing core indicators

Developments in the statistical infrastructure

It is important that work continues to improve the core indicators, either by improving existing sources of data or developing new ones.

The relevant European and statistical infrastructure has been affected in recent years by important developments, summarised below and further discussed in the next part of this section, alongside persisting gaps:

(a) ISCED 2011: adoption of ISCED-2011 ([16]) (replacing ISCED 97) ([17]) and its implementation in main surveys and data collection since 2014;
(b) ISCED-F 2013: adoption of ISCED-F 2013 and its implementation in main surveys and data collection since 2016, replacing the previous version of the classification;
(c) UOE data collection: new EU UOE regulation ([18]) and new 2014 UOE data collection manual ([19]);
(d) back reconstruction of selected UOE time series for key indicators on VET;
(e) EU-LFS: collection in core EU labour force survey (European Commission, 2013b), since 2014, of information on the orientation (general/vocational) of formal education, particularly for the highest level;
(f) CVTS: adoption of the regulation for the fifth continuing vocational training survey (European Commission, 2014a);
(g) AES: adoption of the regulation for the adult education survey 2016 (European Commission, 2014b);
(h) EU-LFS 2016 AHM-2016 ad hoc module of the LFS on the situation of young people in the labour market: adoption of the list of variables and definitions (European Commission, 2015) and related explanatory notes (Eurostat, 2016d);
(i) PIAAC: release of first OECD PIAAC survey results (2013) ([20]);
(j) EWCS: Eurofound sixth wave of the European working condition survey (2015) ([21]);
(k) ESJS: release of first Cedefop European skills and jobs survey results ([22]);
(l) VET opinion survey: release of results of Cedefop European public opinion survey on vocational education and training (Cedefop, 2017b).

([16]) International standard classification of education, 2011 (UNESCO-UIS, 2012).

([17]) International standard classification of education, 1997 (UNESCO-UIS, 2006).

([18]) European Commission, 2013a; replacing, reinforcing and enriching former gentlemen's agreements.

([19]) UNESCO-UIS, OECD and Eurostat, 2014; replacing the 2013 version of the manual (UNESCO-UIS, OECD and Eurostat, 2013); and previous ones.

([20]) PIAAC stands for programme for the international assessment of adult competencies and is an OECD programme. The reference here is to the publication OECD skills outlook 2013: first results from the adults skills survey (OECD, 2013).

([21]) Information available at: https://www.eurofound.europa.eu/surveys

([22]) ESJS stands for European skills and jobs survey. The reference here is to the publication *Skills, qualification and jobs in the EU: the making of a perfect match?* (Cedefop, 2015).

Challenges and opportunities for statistics

A key recent development in the statistical infrastructure has been the adoption of ISCED 2011. This is the 2011 version of the international standard classification of education (UNESCO-UIS, 2012), implemented in main European and international statistical surveys and data collection since 2014 as a data collection year ([23]).

While an in depth discussion of the changes between ISCED 97 and ISCED 2011 is outside the scope of this introduction, it is important to summarise the main ones and their impact on statistics and indicators, including those considered in this publication.

ISCED 2011 has dedicated further attention to levels of education (first digit of the classification), particularly at and within tertiary education. This was previously associated with two levels (5 and 6 of ISCED 97) and it is now associated with four levels (5-8 of ISCED 2011). ISCED 2011 has given more prominence to the orientation (general versus vocational) of the education, identifying it with the second digit of the classification. The vocational stream of education is properly distinguished and defined at ISCED 2011 level 2 (lower secondary education), 3 (upper secondary education), 4 (post-secondary non tertiary) and 5 (short-cycle tertiary education). At higher levels, a distinction is also present between academic and professional education, but this is not yet supported by an internationally agreed definition. In ISCED 2011, the orientation has now only two categories, general and vocational education, while ISCED 97 provided for a third category, pre-vocational education. Under ISCED 2011, this category has been dropped and, based on previous and current definitions, it is expected to be mainly classified as general education (although, correctly, an automatic conversion rule is not provided for in ISCED-2011) ([24]). ISCED 2011 has also a third tier of classification (the third digit) which further distinguishes education based on level completion and access to higher levels of education. There is also more attention given to the distinction between education programmes and attainment at any given level of education. ISCED has become a much more hierarchical classification of education and the three digits approach (level, orientation, completion and access to higher levels) paves the way to collection of data simultaneously accounting for the three different dimensions. ISCED 2011 has also been complemented with an updated version of the classification of fields of study (ISCED fields of education and training), often shortened as ISCED-F 2013 (UNESCO-UIS, 2013).

([23]) This means that first data based on ISCED 2011 were available for reference year 2014 if originating from LFS, year 2013 if originating from the UOE enrolments graduates templates, and year 2012 if originating from the UOE expenditure template.

([24]) An automatic rule has instead been adopted in the UOE data collection: ‘Programmes of 'pre-vocational' orientation in ISCED-97 should be reported as 'general' in this data collection’ (UNESCO-UIS, OECD and Eurostat, 2016).

These developments have been reflected, to varying extents, in the main relevant surveys and data collections. It makes them richer in information and analytical possibilities, and potentially used for improving and completing core indicators.

The UOE data collection on education has become even more information-rich. Enrolment data on number of students and graduates are now collected with higher level of detail: they are available for general and vocational orientation at various levels (including ISCED 2011 level 5). In some instances they can be further distinguished based on the third digit of the classification, which makes possible the calculation of the indicator on enrolment in vocational programmes granting direct access to tertiary education considered in this report. In the EU, this data collection now covers, on a mandatory basis, enrolments in combined school- and work-based vocational programmes and data on expenditure on initial VET. The UOE also collects separate data at EU level on tertiary professional and academic education, although only on a voluntary basis. In the absence of an internally agreed definition, it uses national ones. Key aggregates, such as students, graduates and expenditure, can be broken by various policy-relevant characteristics, although not all, and the number of breakdowns has also increased. ISCED-F 2013 has been properly implemented in the UOE, with the collection of many detailed breakdowns by field of study, where broad, narrow and detailed fields are all duly considered.

Household surveys have also benefited from higher prominence given to initial VET. In the LFS (Eurostat, 2016a) for instance, since 2014, information on the highest level of education has been available annually in a way which distinguishes whether this is general or vocational. This is major achievement, even though the distinction is only for young people and only at medium education level (ISCED 3 and 4, neglecting ISCED 5). This development already supports the production of annual indicators on young VET graduates, including their situation on the labour market and/or participation in further education and training, (which are considered in this report) and which Eurostat has started disseminating as part of in its online database. Similar developments and under similar constraints (age and ISCED level) have occurred in both the survey on income and living conditions (EU-SILC ([25])) and in the adult education survey (AES ([26])), although relevant breakdowns are not published in the Eurostat online database. In such domains, the production of further evidence, specifically on young VET graduates, is possible in principle. However, the production of country-specific descriptive indicators should be carefully evaluated, considering that these sources have smaller sample sizes than the LFS and that, particularly in the case of income data, advanced multivariate techniques are needed to control properly

([25]) See list of educational variables in the EU-SILC at: https://ec.europa.eu/eurostat/documents/1012329/6070906/Personal+data+-%20+Education_1.pdf/5f2b0736-61ea-46f4-bf9d-dc77765d522d

([26]) European Commission, 2014b.

for relevant intervening factors. Information on the field of study is also collected. However, a regretful loss of information has occurred in the EU-LFS: availability of data has been restricted to young people and further limited to the generic broad field of study.

ISCED developments and their implementation also implied methodological changes which affected, to varying extents, comparability over time of the data collected under ISCED 1997 and ISCED 2011. There is some general, but not perfect or one-to-one, correspondence between single levels of education as considered in ISCED 97 and ISCED 2011, particularly at ISCED 3 and 4. There is no perfect correspondence between the dimension of orientation and its categories as considered in the latest versions of the ISCED. This is based on Eurostat assessment as reported in various documents (Eurostat, 2013; 2015b; 2016b; 2016c; 2016e), as well as Cedefop's own assessment of other relevant material on the topic (European Commission, 2008; Eurostat, 2008; 2015a; 2016d).

In the context of the UOE data collection, ISCED changes and the consequent revision of the UOE methodology resulted in 'ISCED levels for which a direct correspondence between ISCED 97 and ISCED 2011 does not exist. These are: ISCED levels 3 to 5, at two-digit level of detail and ISCED 6 and 7 at one-digit of detail, when relevant' (Eurostat, 2013, p. 14). This undermines the comparability over time of key UOE statistics and indicators, including those related to VET, particularly at upper secondary level. As a consequence, Eurostat isolated UOE data collected under ISCED 1997 in separate folders.

The situation is less problematic with statistics and indicators originating from the LFS, particularly relating to educational attainment, where figures are generally computed and presented for three aggregates: high or tertiary (ISCED 5 and above), medium (ISCED 3 and 4), or low educational attainment (ISCED 2 or below). An assessment of comparability over time of such indicators is available as part of Eurostat relevant metadata (Eurostat, 2016b): 'at this level of aggregation data are directly comparable for all available countries with the exception of Austria' ([27]). When considering both level and orientation of education, LFS statistics have been available from the core section of the survey since 2014. They were also collected as part of the 2009 ad hoc module on entry of young people into the labour market. However, it has been assessed by Cedefop that a proper comparison is not possible between data originating from the core section (under ISCED 2011) and the ad hoc module (under ISCED 97). This is mainly due to variations in the categorisation of prevocational

([27]) The level shift break in Austria is due to the reclassification of a programme spanning levels: the qualification acquired on successful completion of higher technical and vocational colleges is allocated in ISCED 2011 to level 5; under ISCED 97 the same qualification was reported on level 4, but earmarked as equivalent to tertiary education.

qualifications over time as well as to technical differences in LFS weighting factors and sample sizes between core and ad hoc observations.

Partly addressing the break in time series for data originating from the UOE data collection, Eurostat launched and concluded an initiative, with voluntary national participation, to collect a selection of past data based on the new ISCED 2011. The aim is to have a selection of key indicators for VET, based on UOE data, for which reliable comparisons over time can be carried out in a longer-term perspective (starting from 2010 as baseline). Results have been published in the Eurostat online database and could be used to improve and complement data in this report, at least for some countries.

Breaks in time series are not a major issue for this report; it uses 2015 as a baseline year for reporting on developments in VET following the Riga conclusions and therefore considers data collected only under ISCED 2011.

Other important changes have concerned the CVTS (European Commission, 2014a), which was further streamlined. Despite this, it has been possible to derive the most important statistics traditionally originating from it. CVTS data used in this report could be complemented, for instance, with information on hours of training for the employed or reasons limiting sponsoring of training as indicated by employers. As a result of methodological changes in the fifth CVTS, participation of workers in guided on-the-job training is no longer measured. The statistics related to skills deemed important by employers or skills targeted by employer-sponsored training will continue to be available from this source but they will not be comparable with those from previous survey rounds.

Other minor changes concerned the EWCS, with implications on comparability over time for some of the indicators used in this report.

The AES has been confirmed (European Commission, 2014b). In the 2016 round, technical improvements were adopted to capture better the participation of individuals in the non-formal job-related and employer-sponsored components of adult education and training. A section on prevalence and characteristics of guidance and counselling has also been added.

The 2016 ad hoc module of the LFS on the situation of young people on the labour market has adopted variables related to work-based learning, as part of the highest level of education, and others such as those for quantifying dropout of young people from upper secondary VET and skills match.

The orientation of education has also been derived in the PIAAC dataset, based on the title of the highest qualification held by interviewees, to support statistics for VET graduates on their skills levels (proficiency) in literacy, numeracy and problem-solving in a technologically rich environment. Specific data on self-perceived skills match and skill developments for the employed have become available from the Cedefop skills and jobs survey, including possible breakdowns by level, orientation and work-based nature of highest level of education.

Cedefop has carried out a survey on VET (Cedefop, 2017a), aimed at investigating European citizens' opinions. A total of 35 646 interviews were conducted across the Member States. The survey provides unprecedented data on European opinions on awareness, attractiveness and effectiveness of vocational education and training in Europe.

Persisting gaps

ISCED 2011 considered VET at tertiary level of education better. However, an operational definition only exists at ISCED 5 and this is only implemented in the UOE data collection on education systems. The need is felt for VET at ISCED 5 to be considered also in the LFS (and in other household surveys) and more generally for establishing an internationally agreed definition of it at higher education levels.

At medium education levels, current household surveys, including the LFS, only capture education orientation for young people; this prevents the possibility to derive a more complete picture for all adults, including older cohorts. The OECD experience (and data regularly published in Education at a glance) shows that this can be extended, at least in LFS, to support analysis for all adults, including older cohorts.

Another major perceived gap is the absence of stable, regular and frequent LFS data on work-based learning in initial VET. This prevents the calculation of important indicators such as individuals having achieved their highest level of education through work-based learning and their situation on the labour market. Related information from LFS ad hoc modules is available but has been affected by various issues: it is too infrequent to meet policy needs; it tends to be collected in ways and sections that is not ideal (the ideal being the core section on educational attainment of the LFS in compliance with the approaches used there); and it is subject to methodological changes over time (preventing appropriate comparisons). Indicators on apprentice numbers, with quality and periodicity suitable for monitoring policy developments, are also lacking.

Given the absence of panel data, which could allow tracking of individual trajectories, cross-sectional variables from the adult education survey (AES) could be used to assess usefulness and outcomes of adult learning based on self-reported assessment by interviewees. Variables targeting individual satisfaction with learning activities have been dropped from the AES but those on the use of acquired skills have been improved. These are important dimensions of VET quality.

Absence of longitudinal and more objective data is a limitation. Better exploitation of the longitudinal component of the EU-SILC, and/or of the EU-LFS waves approach, could be a way forward, especially for CVET.

To identify VET contribution to lifelong learning better there is a need to isolate it from other types of learning. Developments could include measuring employer-sponsored training and or job-related learning not only as a component of non-formal education and training but also as a component of the formal part, ideally in the LFS or, more pragmatically, in AES.

Internationally comparable data on continuing professional development of VET teachers and trainers are lacking. Extending PIAAC to upper secondary education could partly help filling the gap.

Reading the indicator overviews

The 36 core indicators considered in this publication are discussed one by one in 'indicator overviews'. If data are available, each indicator overview presents data for the European Union, the 28 EU Member States and five selected EFTA and candidate countries (Iceland, North Macedonia, Norway, Switzerland and Turkey) ([28]). Each indicator overview considers data from the most recent year for which indicator values were available (this differs between indicators), comparing the situation of all countries and of the EU as a whole on that indicator. Data for the 2015 baseline year are also considered: this makes it possible not only to compare the performance of the countries at a given point, but also to observe changes over time. For most indicators the most recent year available year is 2016, 2017 or 2018, but there is no update for some indicators. Not all data or indicators are updated annually: some originate from surveys with a five-year frequency. In some cases, additional data are presented considering national targets or comparisons between general and vocational education.

In each overview, the data are presented by means of a chart and a table and are supplemented with comments.

Comments are provided to help read the data, including a definition of the indicator and a contextualisation of its policy relevance, also highlighting key points. In addition to country data, comments also refer to EU averages and, in some instances, to EU benchmarks (targets set for the EU averages and to be met by 2020), as well as to 2020 national targets. This is done to contextualise country data and to offer a basis for comparisons. There is no intention to identify EU averages or EU benchmarks as concrete target values for the countries. This is also the case for national targets: these should be read with caution because they are objectives to be met by 2020 and not at present.

Bar charts with two columns per country are used to include the 2015 baseline data and those for the most recent year. In the charts, countries are clustered in groups for EU and non-EU Member States; within each group countries are sorted in descending order based on the most recent available value of the indicator.

([28]) The selection of the candidate and EFTA countries is driven by data availability. Countries were excluded when available data were scarce for drawing a reasonably complete statistical overview. Of the countries whose ministers signed the Bruges communiqué, only Liechtenstein is not covered.

The data represented in the charts are included in a table, which also quantifies changes over time. In the right-hand part of the table, recent changes are shown per country, alongside a comparable recent change estimated for the EU. The recent change measure is the difference between the indicator value for the country in the baseline year and in the last available year.

EU average data are based on 28 countries. In some cases, EU averages were not directly available from the Eurostat online database and have been estimated as weighted averages of available country data.

The tables and the charts do not present data when they are not available. They also exclude 2015 values if they cannot be compared with the most recent ones and other values which have very low reliability. The tables offer additional information on data points which can be affected by quality issues (flags and footnotes).

In most tables, values are rounded to one decimal place. Due to rounding effects, small discrepancies can be found across the cells of the table.

Part I
Access, attractiveness and flexibility

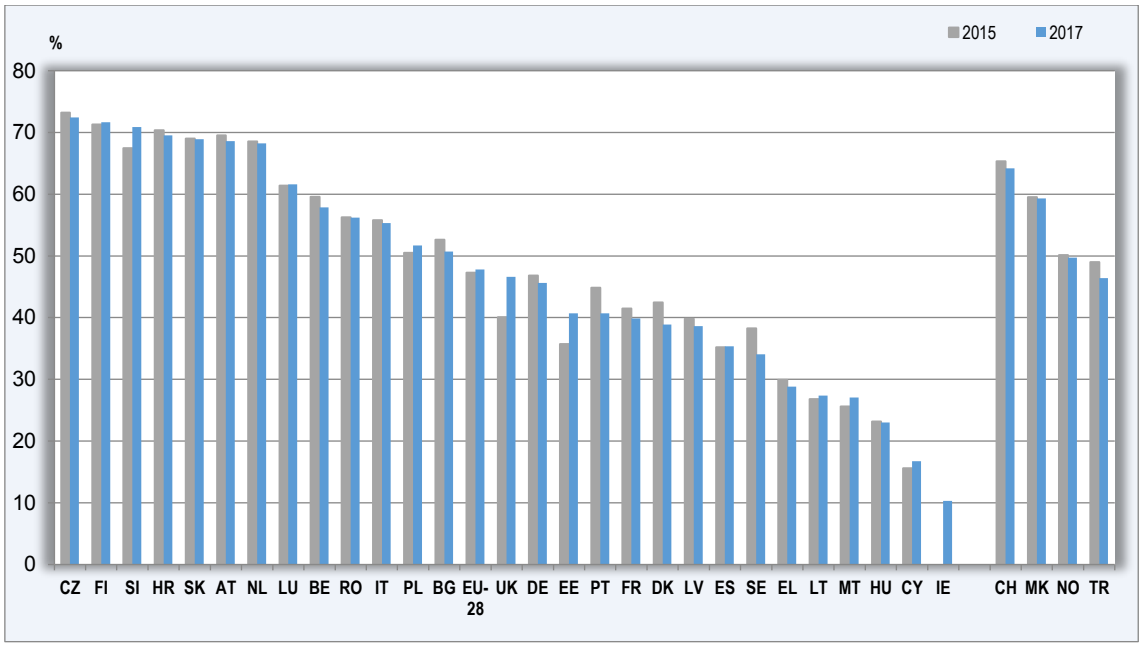
1. How many students participate in IVET?

Indicator 1010: IVET students as a percentage of all upper secondary students

A key aim of EU education and training policy is to improve the attractiveness of initial vocational education and training (IVET). The general challenge for IVET systems is to provide young people with skills and competences to access and maintain their position in the labour market and to progress within it, thereby sustaining their employability. Participation levels in IVET provide a proxy measure of its attractiveness but they do not always reflect whether IVET is as highly esteemed by pupils and parents as the general stream of education. Additionally, participation levels do not account for those students that, due to obstacles and other factors, did not eventually enrol in IVET, even though they were initially interested in doing so.

The indicator below refers to participation in IVET at upper secondary education level. The indicator is defined as the percentage of all upper secondary students (ISCED 3) enrolled in the vocational stream of education (IVET). EU averages are estimated from available country data.

Figure 1. **IVET students as % of all upper secondary students**



Source: Cedefop calculations based on Eurostat data/UOE data collection on education systems.

Key points

In 2017, 47.8% of all upper secondary students in the EU were enrolled in vocational programmes. The share of upper secondary students undertaking vocational programmes varies considerably between the EU Member States. In 2017, Czechia

had the highest share of upper secondary students undertaking vocational programmes at 72.4%. Finland, Slovenia, Croatia, Slovakia, Austria and the Netherlands recorded more than 65% of upper secondary students in the VET stream. Ireland (10.3%), Cyprus (16.7%), Hungary (23%), Malta (27.1%), Lithuania (27.4%) and Greece (28.8%) had the lowest shares (lower than 30% in 2017).

On average, the share of students in IVET slightly increased in the EU between 2015 and 2017 (by 0.5 percentage points). The largest positive change was in the United Kingdom where the share increased by 6.5 percentage points but (at 46.6% in 2017) still remained just under the EU average. A considerable increase (by 5.0 percentage points) was also observed in Estonia. Over the same period, some countries reported a drop: the largest falls were observed in Portugal and Sweden (by 4.2 percentage points) and in Denmark (by 3.6 percentage points). In all three countries the share dropped further below the EU average.

Data for non-EU countries indicate that VET programmes accounted for sizeable shares of upper secondary enrolments. In 2017, the percentages ranged from 46.4% in Turkey to 64.2% in Switzerland.

Table 1. **IVET students as % of all upper secondary students**

Country code	Country	2015		2017		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	47.3	(ce)	47.8	(ce)	'15-'17	0.5	
BE	Belgium	59.6		57.8		'15-'17	-1.7	0.5
BG	Bulgaria	52.6		50.7		'15-'17	-1.9	0.5
CZ	Czechia	73.2		72.4		'15-'17	-0.8	0.5
DK	Denmark	42.5		38.9		'15-'17	-3.6	0.5
DE	Germany	46.8		45.6		'15-'17	-1.2	0.5
EE	Estonia	35.7		40.7		'15-'17	5.0	0.5
IE	Ireland		z	10.3		'15-'17		0.5
EL	Greece	29.9		28.8		'15-'17	-1.1	0.5
ES	Spain	35.2		35.3		'15-'17	0.2	0.5
FR	France	41.5		39.9		'15-'17	-1.6	0.5
HR	Croatia	70.4		69.6		'15-'17	-0.8	0.5
IT	Italy	55.8		55.3		'15-'17	-0.5	0.5
CY	Cyprus	15.6		16.7		'15-'17	1.1	0.5
LV	Latvia	39.8		38.6		'15-'17	-1.2	0.5
LT	Lithuania	26.8		27.4		'15-'17	0.6	0.5
LU	Luxembourg	61.4		61.6		'15-'17	0.2	0.5
HU	Hungary	23.2		23.0		'15-'17	-0.2	0.5
MT	Malta	25.6		27.1		'15-'17	1.5	0.5
NL	Netherlands	68.5		68.2		'15-'17	-0.3	0.5
AT	Austria	69.5		68.6		'15-'17	-1.0	0.5
PL	Poland	50.5		51.7		'15-'17	1.2	0.5
PT	Portugal	44.9		40.7		'15-'17	-4.2	0.5
RO	Romania	56.3		56.2		'15-'17	-0.1	0.5
SI	Slovenia	67.5		70.9		'15-'17	3.4	0.5
SK	Slovakia	69.0		68.9		'15-'17	-0.1	0.5
FI	Finland	71.3		71.6		'15-'17	0.4	0.5
SE	Sweden	38.2		34.1		'15-'17	-4.2	0.5
UK	United Kingdom	40.1		46.6		'15-'17	6.5	0.5
IS	Iceland	32.8		29.9		'15-'17	-2.9	0.5
MK	North Macedonia	59.5		59.3		'15-'17	-0.2	0.5
NO	Norway	50.1		49.7		'15-'17	-0.4	0.5
CH	Switzerland	65.3		64.2		'15-'17	-1.2	0.5
TR	Turkey	49.0		46.4		'15-'17	-2.6	0.5

(ce) Cedefop estimate based on available country data.
(z) Eurostat: 'not applicable'.
Source: Cedefop calculations based on Eurostat data/UOE data collection on education systems.

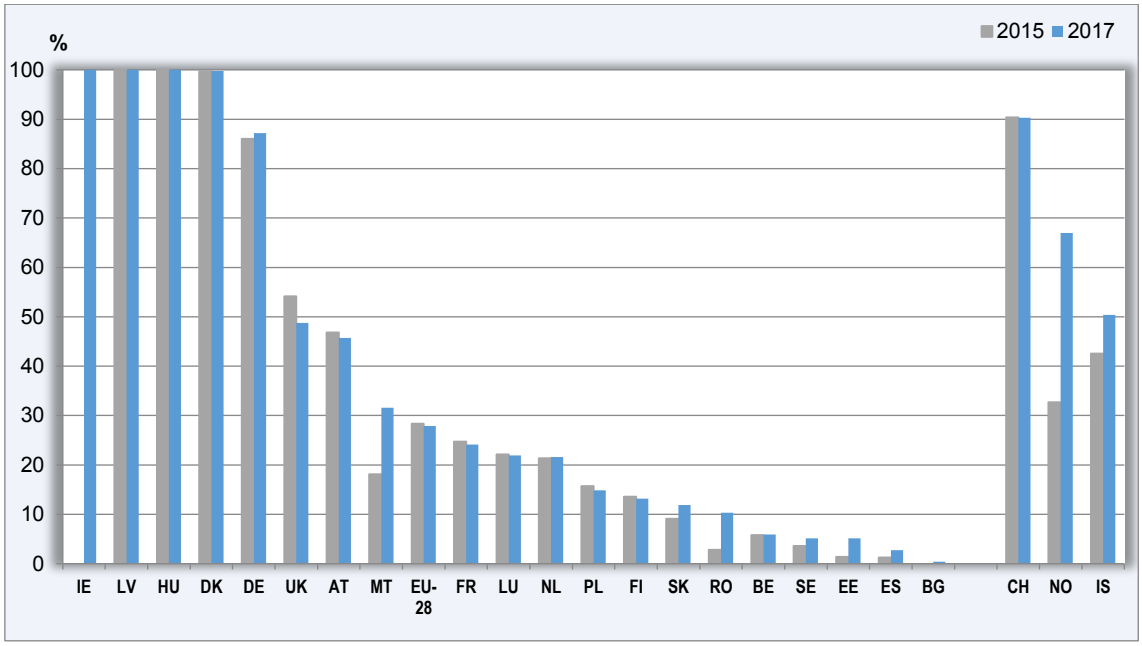
2. How many students participate in work-based IVET?

Indicator 1020: students in work-based upper secondary IVET

Work-based learning can provide a bridge to the labour market. It can aid transition from education to work and contribute to the development of highly relevant skills for the labour market. The Bruges communiqué and the Riga conclusions call for work-based learning to become a key feature of IVET systems. Of particular interest is the extent to which students in IVET are enrolled in programmes combining a work-based and school-based component, as opposed to vocational programmes which are only school-based.

The indicator below is defined as the percentage of upper secondary VET students that are enrolled in combined work- and school-based programmes. In the UNESCO, OECD, Eurostat data collection on formal education (UOE), a vocational programme is classified as combined work- and school-based if 25% or more of the curriculum is presented outside the school environment; otherwise it is classified as school-based. Programmes where the work-based component accounts for 90% or more of the curriculum are excluded. Under these conditions, apprenticeships are included in the work-based IVET component. EU averages are estimated from available country data (UOE, 2016).

Figure 2. **IVET work-based students as % of all upper secondary IVET**



Source: Cedefop calculations based on Eurostat data/UOE data collection on education systems.

Key points

It can be estimated that, in 2017, in the EU, 27.9% of students in upper secondary VET were enrolled in combined work- and school-based programmes. In Ireland, Latvia and Hungary all

upper secondary VET was undertaken in combined work- and school-based programmes. In Denmark the share of students in combined work- and school-based programmes was close to 100 % (99.8%). The share was also relatively high in Germany (87.2%). Combined work- and school-based programmes accounted for almost 50% of students in upper secondary VET in the United Kingdom (48.8%) and in Austria (45.7%), and between 10% and 30% in Romania (10.3%), Slovakia (11.9%), Finland (13.1%), Poland (14.9%), the Netherlands (21.6%), Luxembourg (21.9%), and France (24.1%). In Malta, the share was just over 30%, with a share of 31.6% of work-based students in 2017. The share was lower than 10% in Bulgaria (0.4%), Spain (2.7%), Estonia (5.1%), Sweden (5.2%) and Belgium (5.9%).

In several countries, the UOE statistical distinction in vocational programmes between combined work- and school-based, as opposed to school-based, was not applicable, due to the characteristics of their IVET systems or programmes.

The EU average declined by 0.5 percentage points between 2015 and 2017. Some countries, however, reported considerable increases in the percentage of students in combined work- and school-based VET programmes: Romania (+7.5 percentage points), Malta (+13.5 percentage points), Iceland (+7.8 percentage points) and Norway (+34.3 percentage points), while a fall was observed in the United Kingdom (-5.4 percentage points).

Among non-EU countries, more than half of upper secondary VET was work-based in Iceland (50.4%), Norway (67%) and in Switzerland (90.4%).

Table 2. **IVET work-based students as % of all upper secondary IVET**

Country code	Country	2015		2017		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	28.3	(ce)	27.9	(ce)	'15-'17	-0.5	
BE	Belgium	5.8		5.9		'15-'17	0.1	-0.5
BG	Bulgaria		z	0.4		'15-'17		-0.5
CZ	Czechia	8.8			z	'15-'17		-0.5
DK	Denmark	99.7		99.8		'15-'17	0.1	-0.5
DE	Germany	86.0		87.2		'15-'17	1.2	-0.5
EE	Estonia	1.4		5.1		'15-'17	3.8	-0.5
IE	Ireland		z	100.0		'15-'17		-0.5
EL	Greece		z		z	'15-'17		-0.5
ES	Spain	1.2		2.7		'15-'17	1.5	-0.5
FR	France	24.7		24.1		'15-'17	-0.6	-0.5
HR	Croatia		z		z	'15-'17		-0.5
IT	Italy		z		z	'15-'17		-0.5
CY	Cyprus		z		z	'15-'17		-0.5
LV	Latvia	100.0		100.0		'15-'17	0.0	-0.5
LT	Lithuania		z		z	'15-'17		-0.5
LU	Luxembourg	22.1		21.9		'15-'17	-0.2	-0.5
HU	Hungary	100.0		100.0		'15-'17		-0.5
MT	Malta	18.1		31.6		'15-'17	13.5	-0.5
NL	Netherlands	21.3	p	21.6	p	'15-'17	0.2	-0.5
AT	Austria	46.8		45.7		'15-'17	-1.1	-0.5
PL	Poland	15.7		14.9		'15-'17	-0.8	-0.5
PT	Portugal		z		z	'15-'17		-0.5
RO	Romania	2.8		10.3		'15-'17	7.5	-0.5
SI	Slovenia		z		z	'15-'17		-0.5
SK	Slovakia	9.1		11.9		'15-'17	2.8	-0.5
FI	Finland	13.6		13.1		'15-'17	-0.4	-0.5
SE	Sweden	3.6		5.2		'15-'17	1.6	-0.5
UK	United Kingdom	54.1		48.8		'15-'17	-5.4	-0.5
IS	Iceland	42.6		50.4		'15-'17	7.8	-0.5
MK	North Macedonia		z			'15-'17		-0.5
NO	Norway	32.7		67.0		'15-'17	34.3	-0.5
CH	Switzerland	90.4		90.3		'15-'17	-0.1	-0.5
TR	Turkey		z		z	'15-'17		-0.5

(ce) Cedefop estimate based on available country data.
(p) Partial information (public sector) for NL.
(z) Eurostat: 'not applicable'.
Source: Cedefop calculations based on Eurostat data/UOE data collection on education systems.

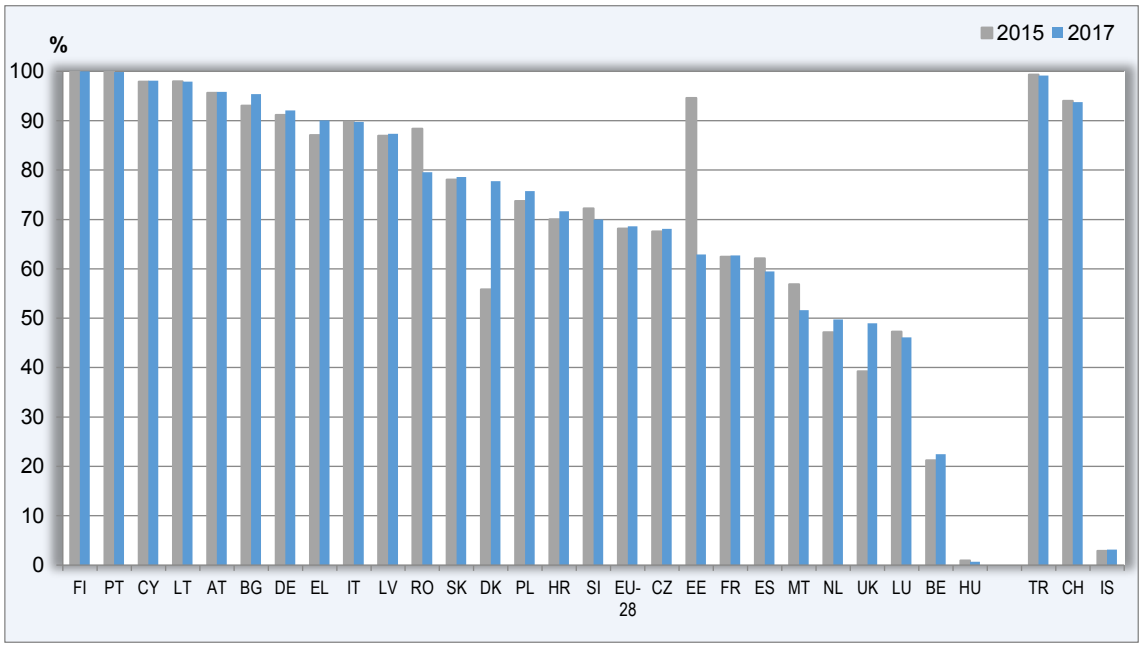
3. How many IVET students have direct access to tertiary education?

Indicator 1025: IVET students with direct access to tertiary education

Education programmes in upper secondary VET are diverse. Shorter programmes may contribute to raising education beyond lower secondary levels, reducing early school leaving and improving the transition to the labour market. Other longer and more complex programmes may be geared towards excellence by developing higher skills for the world of work or for continuing education and training at the tertiary level. The availability of such programmes is necessary to attract the best students to VET; balanced participation and offering, based on the country specific context, could help raise the overall attractiveness of VET.

The indicator is defined as the percentage of upper secondary VET students enrolled in programmes providing direct access to tertiary education ([29]). EU averages are estimated from available country data.

Figure 3. **IVET students in programmes with direct access to tertiary education as % of all upper secondary IVET**



Source: Cedefop calculations based on Eurostat data/UOE data collection on education systems.

([29]) Education programmes assigned to ISCED level 35 are vocational upper secondary education. Among these, the programmes belonging to ISCED level 354 offer direct access to tertiary education.

Key points

In 2017, in the EU, 68.6% of students in upper secondary IVET were enrolled in programmes granting direct access to tertiary education upon completion. The percentage was at or about 100% in Finland and Portugal. Percentages were higher than 90% in Cyprus (98.1%), Lithuania (97.9%), Austria (95.8%), Bulgaria (95.4%), Germany (92.1%) and Greece (90%). Programmes granting direct access to tertiary education accounted for less than 50% of enrolments in VET in Hungary (0.7%). Belgium (22.5%), Luxembourg (46.1%), the United Kingdom (49%) and the Netherlands (49.8%),

Between 2015 and 2017, the percentages for the EU and for most Member States were fairly stable. Three countries, however, reported some considerable falls: Estonia (-31.7 percentage points), Romania (-8.8 percentage points) and Malta (-5.3 percentage points). In contrast, considerable increases were reported for Denmark and the United Kingdom respectively by 21.9 and 9.7 percentage points.

In the non-EU countries, more than 90% of all upper secondary IVET students had access to tertiary education in Turkey (99.2%) and Switzerland (93.8%); in Iceland the share was only 3.1%.

Table 3. **IVET students in programmes with direct access to tertiary education as % of all upper secondary IVET**

Country code	Country	2015		2017		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	68.1	(ce)	68.6	(ce)	'15-'17	0.4	
BE	Belgium	21.2		22.5		'15-'17	1.3	0.4
BG	Bulgaria	93.0		95.4		'15-'17	2.3	0.4
CZ	Czechia	67.6		68.1		'15-'17	0.5	0.4
DK	Denmark	55.8		77.8		'15-'17	21.9	0.4
DE	Germany	91.2		92.1		'15-'17	0.9	0.4
EE	Estonia	94.6		62.9		'15-'17	-31.7	0.4
IE	Ireland		z		z	'15-'17		0.4
EL	Greece	87.1		90.0		'15-'17	2.9	0.4
ES	Spain	62.1		59.5		'15-'17	-2.6	0.4
FR	France	62.4		62.7		'15-'17	0.3	0.4
HR	Croatia	70.0		71.6		'15-'17	1.6	0.4
IT	Italy	89.8		89.7		'15-'17	-0.1	0.4
CY	Cyprus	97.9		98.1		'15-'17	0.2	0.4
LV	Latvia	87.0		87.4		'15-'17	0.4	0.4
LT	Lithuania	98.0		97.9		'15-'17	0.0	0.4
LU	Luxembourg	47.3		46.1		'15-'17	-1.2	0.4
HU	Hungary	0.9		0.7		'15-'17	-0.2	0.4
MT	Malta	56.9		51.6		'15-'17	-5.3	0.4
NL	Netherlands	47.2		49.8		'15-'17	2.6	0.4
AT	Austria	95.6		95.8		'15-'17	0.2	0.4
PL	Poland	73.7		75.7		'15-'17	2.0	0.4
PT	Portugal	99.9		99.9		'15-'17	0.0	0.4
RO	Romania	88.4		79.6		'15-'17	-8.8	0.4
SI	Slovenia	72.3		70.0		'15-'17	-2.3	0.4
SK	Slovakia	78.1		78.6		'15-'17	0.5	0.4
FI	Finland	100.0		100.0		'15-'17		0.4
SE	Sweden	38.2			z	'15-'17		0.4
UK	United Kingdom	39.2		49.0		'15-'17	9.7	0.4
IS	Iceland	2.9		3.1		'15-'17	0.3	0.4
MK	North Macedonia	93.2			u	'15-'17		
NO	Norway		z		z	'15-'17		0.4
CH	Switzerland	94.0		93.8		'15-'17	-0.2	0.4
TR	Turkey	99.3		99.2		'15-'17	-0.2	0.4

(ce) Cedefop estimate based on available country data.
(u) Eurostat: 'low reliability';
(z) Eurostat: 'not applicable'.
Source: Cedefop calculations based on Eurostat data/UOE data collection on education systems.

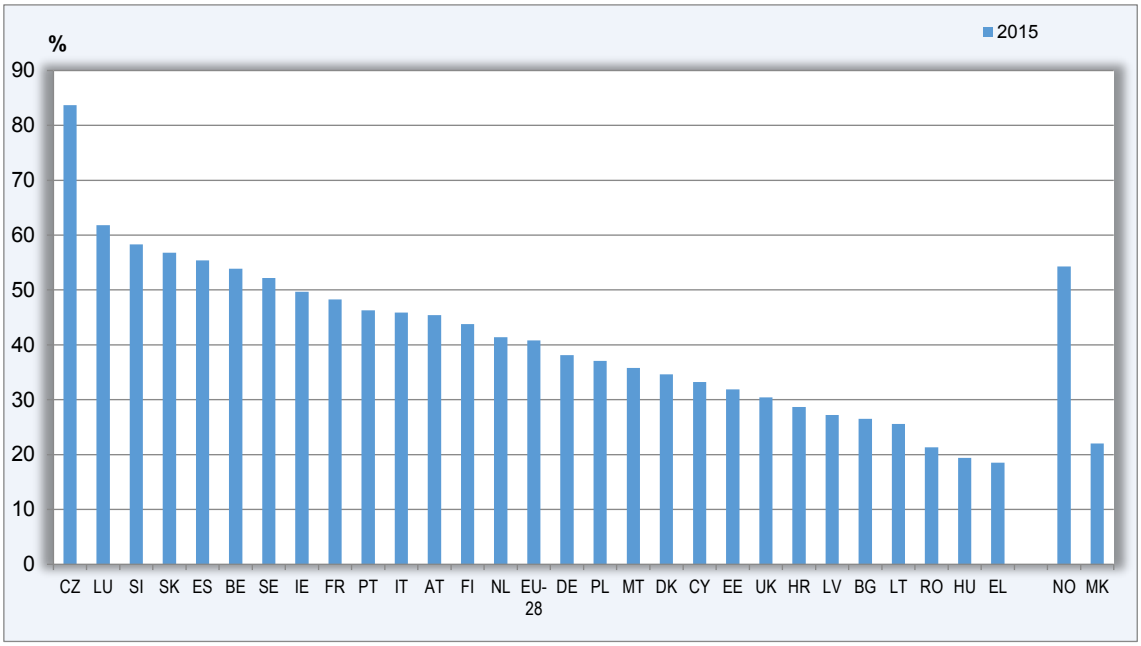
4. How many workers participate in CVT courses?

Indicator 1030: workers participating in CVT courses

Continued vocational education and training (CVET), and particularly employer-sponsored CVET, is a key component of adult learning. It can contribute to economic performance and competitiveness as well as to personal fulfilment and career progress.

This indicator is defined as the percentage of all those employed (in all enterprises surveyed) who participated in employer-sponsored CVT courses in the reference calendar year for the survey (2015). CVT courses refer to those training activities which are separate from day-to-day work activities and which exhibit a high degree of organisation by a trainer or a training institution. CVT courses take the form of employer-sponsored training with the highest worker participation. Employer sponsored CVT courses are those paid fully or partly by the employer or occurring during paid working time.

Figure 4. **Workers participating in CVT courses (%)**



Source: Eurostat, continuing vocational training survey.

Key points

In 2015, in the EU, 40.8% of workers participated in employer sponsored CVT courses. The highest percentage was reported in Czechia (83.7%), followed by Luxembourg (61.8%), Slovenia (58.3%), Slovakia (56.8%), Spain (55.4%), Belgium (53.9%) and Sweden (52.2%). The lowest participation levels were reported in Greece and

Hungary, with participation rates lower than 20%. Among non-EU countries, data were only available for Norway (54.3%) and North Macedonia (22%).

Table 4. **Workers participating in CVT courses (%)**

Country code	Country	2015	
		Value	Flag
EU-28	European Union (28)	40.8	
BE	Belgium	53.9	
BG	Bulgaria	26.5	
CZ	Czechia	83.7	
DK	Denmark	34.6	
DE	Germany	38.1	
EE	Estonia	31.9	
IE	Ireland	49.7	
EL	Greece	18.5	
ES	Spain	55.4	
FR	France	48.3	
HR	Croatia	28.7	
IT	Italy	45.9	
CY	Cyprus	33.2	
LV	Latvia	27.2	
LT	Lithuania	25.6	
LU	Luxembourg	61.8	
HU	Hungary	19.4	
MT	Malta	35.8	
NL	Netherlands	41.4	
AT	Austria	45.4	
PL	Poland	37.1	
PT	Portugal	46.3	
RO	Romania	21.3	
SI	Slovenia	58.3	
SK	Slovakia	56.8	
FI	Finland	43.8	
SE	Sweden	52.2	
UK	United Kingdom	30.4	
IS	Iceland		
MK	North Macedonia	22.0	
NO	Norway	54.3	
CH	Switzerland		
TR	Turkey		

Source: Eurostat, continuing vocational training survey.

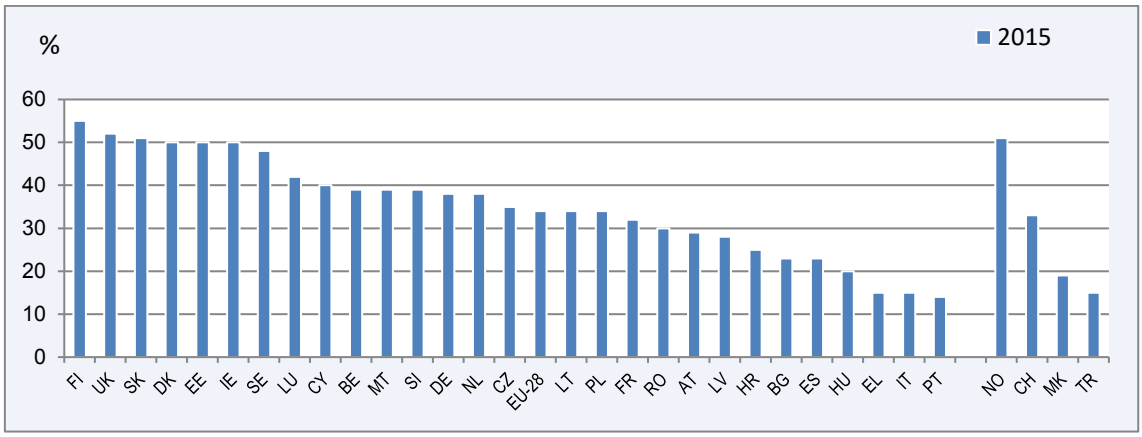
5. How many workers participate in on-the-job training?

Indicator 1040: workers participating in on-the-job training

Work-based learning is not only important in IVET, but also in CVET. On-the-job training as a form of work-based learning, contributes to upgrading skills that are essential for specific jobs or specific work environments, emphasising a learning-by-doing approach. On-the-job training is an important, and often more flexible, form of employer-sponsored training (paid fully or partly by the employer or occurring during paid working time).

The indicator below is defined as the percentage of workers who participated in on-the-job training in the 12 months prior to the survey.

Figure 5. **Workers participating in on-the-job training (%)**



Source: Eurofound, European working conditions survey.

Key points

In 2015, 34% of workers in the EU declared having participated in on-the-job training over the previous 12 months. Finland, the UK, Slovakia, Denmark, Estonia and Ireland had the highest participation rates in on-the-job training (at or above 50%); Portugal, Italy, Greece and Hungary reported the lowest level (at or below 20%).

Table 5. **Workers participating in on-the-job training (%)**

Country code	Country	2015	
		Value	Flag
EU-28	European Union (28)	34	
BE	Belgium	39	
BG	Bulgaria	23	
CZ	Czechia	35	
DK	Denmark	50	
DE	Germany	38	
EE	Estonia	50	
IE	Ireland	50	
EL	Greece	15	
ES	Spain	23	
FR	France	32	
HR	Croatia	25	
IT	Italy	15	
CY	Cyprus	40	
LV	Latvia	28	
LT	Lithuania	34	
LU	Luxembourg	42	
HU	Hungary	20	
MT	Malta	39	
NL	Netherlands	38	
AT	Austria	29	
PL	Poland	34	
PT	Portugal	14	
RO	Romania	30	
SI	Slovenia	39	
SK	Slovakia	51	
FI	Finland	55	
SE	Sweden	48	
UK	United Kingdom	52	
IS	Iceland		
MK	North Macedonia	19	
NO	Norway	51	
CH	Switzerland	33	
TR	Turkey	15	

Source: Eurofound, European working conditions survey.

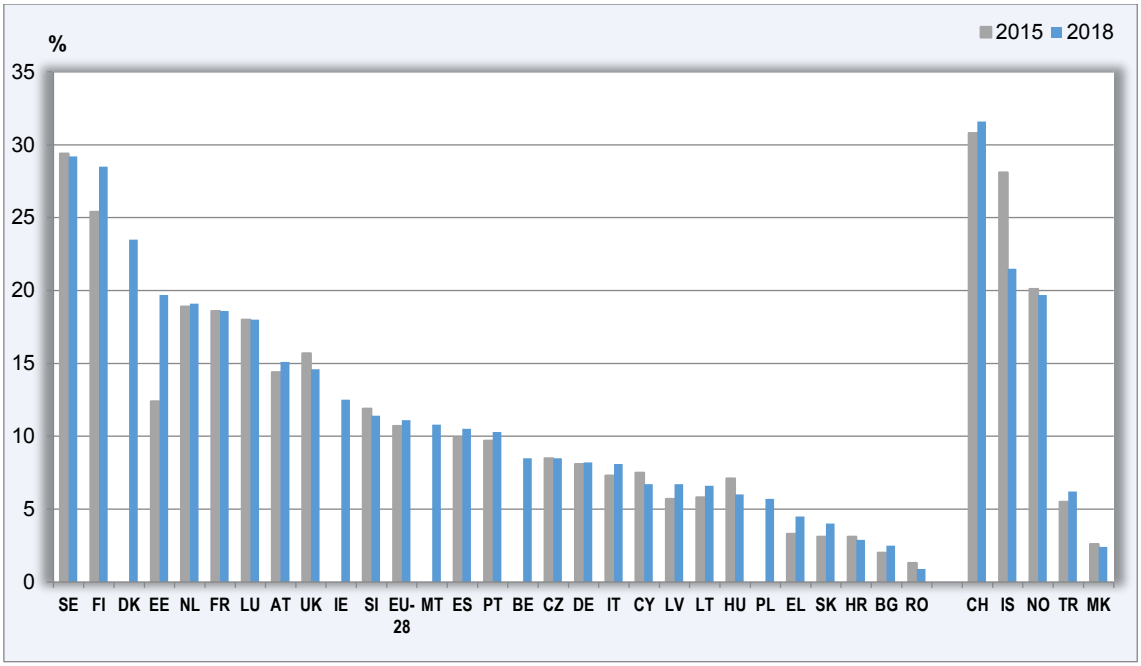
6. How many adults participate in education and training?

Indicator 1050: adults in education and training (lifelong learning indicator)

Raising adult participation in adult education and training is one key objective of the EU education and training 2020 strategy. The EU target for 2020 is to have an average of at least 15% of adults participating in lifelong learning. With participation in adult learning activities being mostly non-formal and job-related, CVET plays an important role.

The indicator below is participation in lifelong learning. It is defined as the percentage of the adult population aged 25 to 64 participating in education and training over the four weeks prior to the EU labour force survey.

Figure 6. **Adults in lifelong learning (%)**



Source: Eurostat, EU labour force survey.

Key points

In 2018, 11.1% of adults in the EU participated in education and training (in the four weeks prior to the survey). Participation rates were higher than 20% in Sweden (29.2%), Finland (28.5%) and Denmark (23.5%); they were lowest in Romania (0.9%), Bulgaria (2.5%) and Croatia (2.9%).

With an upward change by 0.4 percentage points between 2015 and 2018, the lifelong learning indicator for the EU was relatively stable. This stable trend can be

found in most Member States: in 17, the absolute change between 2015 and 2018 was smaller than one percentage point. A notable increase took place in Estonia (+7.3 percentage points). Break in time series occurred in Belgium, Denmark, Ireland, Malta and Poland, so their data for 2018 cannot be reliably compared with those for 2015.

Among non-EU countries, participation of adults in lifelong learning varied considerably, with values for 2018 ranging between 31.6% in Switzerland and 2.4% in North Macedonia. A remarkable fall in participation rates between 2015 and 2018 was noticeable in Iceland (-6.6 percentage points).

Table 6. **Adults in lifelong learning (%)**

Country code	Country	2015		2018			Recent change	
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	10.7		11.1		'15-'18	0.4	
BE	Belgium			8.5	b	'15-'18		
BG	Bulgaria	2.0		2.5		'15-'18	0.5	0.4
CZ	Czechia	8.5		8.5		'15-'18	0.0	0.4
DK	Denmark			23.5	b	'15-'18		
DE	Germany	8.1		8.2		'15-'18	0.1	0.4
EE	Estonia	12.4		19.7		'15-'18	7.3	0.4
IE	Ireland			12.5	b	'15-'18		
EL	Greece	3.3		4.5		'15-'18	1.2	0.4
ES	Spain	9.9		10.5		'15-'18	0.6	0.4
FR	France	18.6		18.6		'15-'18	0.0	0.4
HR	Croatia	3.1		2.9		'15-'18	-0.2	0.4
IT	Italy	7.3		8.1		'15-'18	0.8	0.4
CY	Cyprus	7.5		6.7		'15-'18	-0.8	0.4
LV	Latvia	5.7		6.7		'15-'18	1.0	0.4
LT	Lithuania	5.8		6.6		'15-'18	0.8	0.4
LU	Luxembourg	18.0		18.0		'15-'18	0.0	0.4
HU	Hungary	7.1		6.0		'15-'18	-1.1	0.4
MT	Malta			10.8	b	'15-'18		
NL	Netherlands	18.9		19.1		'15-'18	0.2	0.4
AT	Austria	14.4		15.1		'15-'18	0.7	0.4
PL	Poland			5.7	b	'15-'18		
PT	Portugal	9.7		10.3		'15-'18	0.6	0.4
RO	Romania	1.3		0.9		'15-'18	-0.4	0.4
SI	Slovenia	11.9		11.4		'15-'18	-0.5	0.4
SK	Slovakia	3.1		4.0		'15-'18	0.9	0.4
FI	Finland	25.4		28.5		'15-'18	3.1	0.4
SE	Sweden	29.4		29.2		'15-'18	-0.2	0.4
UK	United Kingdom	15.7		14.6		'15-'18	-1.1	0.4
IS	Iceland	28.1		21.5		'15-'18	-6.6	0.4
MK	North Macedonia	2.6		2.4		'15-'18	-0.2	0.4
NO	Norway	20.1		19.7		'15-'18	-0.4	0.4
CH	Switzerland	30.8		31.6		'15-'18	0.8	0.4
TR	Turkey	5.5		6.2		'15-'18	0.7	0.4

(b) Eurostat: 'break in time series'.

Source: Eurostat, EU labour force survey.

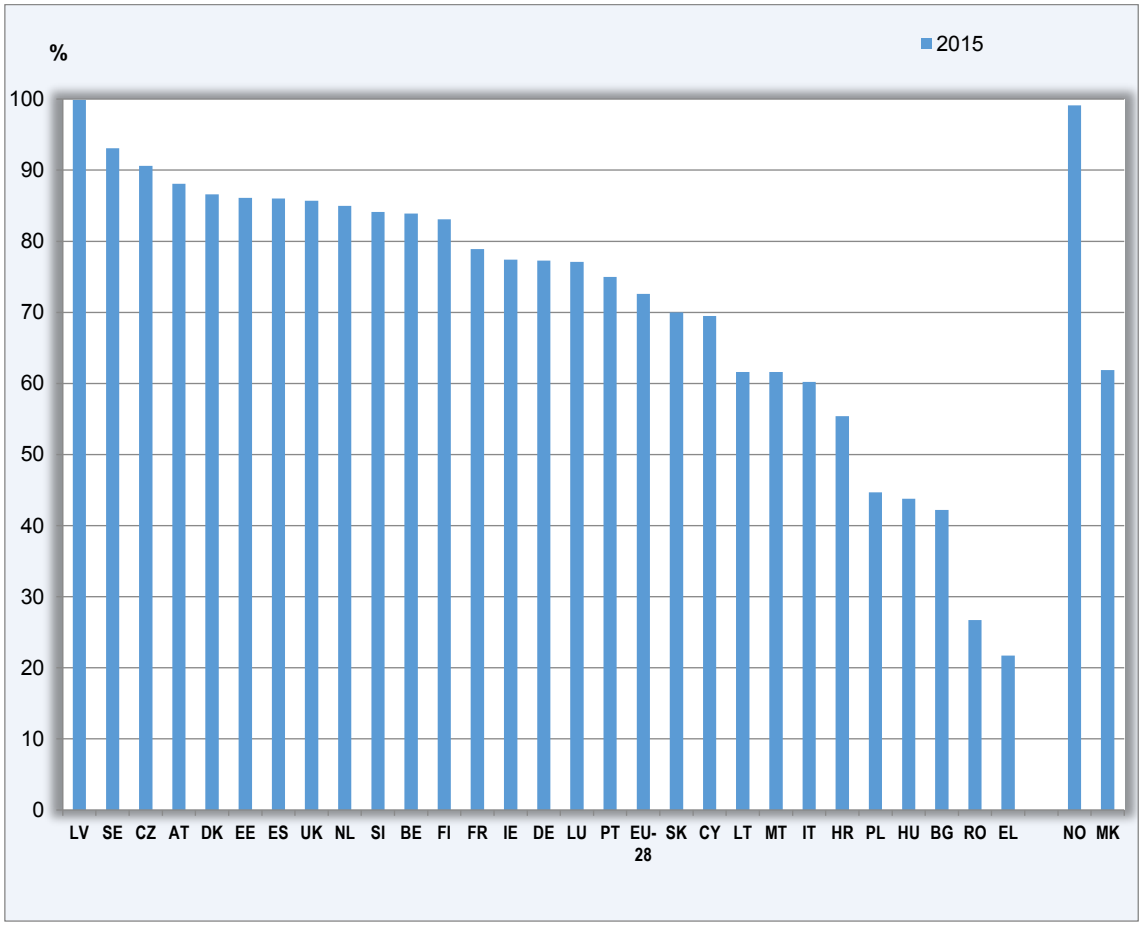
7. How many enterprises provide training to workers?

Indicator 1060: enterprises providing training

Employers can offer continuing vocational training (CVT) to their staff in order to increase their skills.

The indicator below is defined as the percentage of enterprises which sponsored any type of vocational training for their staff (person employed) in the reference calendar year for the survey (2015). These activities include CVT courses and other forms of CVT: on-the-job training; job-rotation, exchanges, secondments or study visits; participation in learning or quality circles; self-directed learning; and attendance at conferences, workshops, trade fairs and lectures. For statistical purposes, the training refers to measures or activities, which must have been planned in advance and must have been organised or supported with the aim of promoting the goal of learning. Random learning and initial vocational training (IVT) are excluded. Employer-sponsored training activities are those paid fully or partly by the employer or occurring during paid working time.

Figure 7. **Enterprises providing training (%)**



Source: Eurostat, continuing vocational training survey.

Key points

On average, 72.6% of EU employers sponsored training for their staff in 2015. Percentages varied widely across countries. The highest values (90% or more) were reported in Latvia, Sweden and Czechia. The lowest were found for Greece, Romania, Bulgaria, Hungary and Poland (less than 45%). Among non-EU countries, data are only available for Norway, where almost all enterprises provided vocational training to their staff (99.1%), and for North Macedonia (61.9%).

Table 7. **Enterprises providing training (%)**

Country code	Country	2015	
		Value	Flag
EU-28	European Union (28)	72.6	
BE	Belgium	83.9	
BG	Bulgaria	42.2	
CZ	Czechia	90.6	
DK	Denmark	86.6	
DE	Germany	77.3	
EE	Estonia	86.1	
IE	Ireland	77.4	
EL	Greece	21.7	
ES	Spain	86.0	
FR	France	78.9	
HR	Croatia	55.4	
IT	Italy	60.2	
CY	Cyprus	69.5	
LV	Latvia	99.9	
LT	Lithuania	61.6	
LU	Luxembourg	77.1	
HU	Hungary	43.8	
MT	Malta	61.6	
NL	Netherlands	85.0	
AT	Austria	88.1	
PL	Poland	44.7	
PT	Portugal	75.0	
RO	Romania	26.7	
SI	Slovenia	84.1	
SK	Slovakia	70.0	
FI	Finland	83.1	
SE	Sweden	93.1	
UK	United Kingdom	85.7	
IS	Iceland		
MK	North Macedonia	61.9	
NO	Norway	99.1	
CH	Switzerland		
TR	Turkey		

Source: Eurostat, continuing vocational training survey.

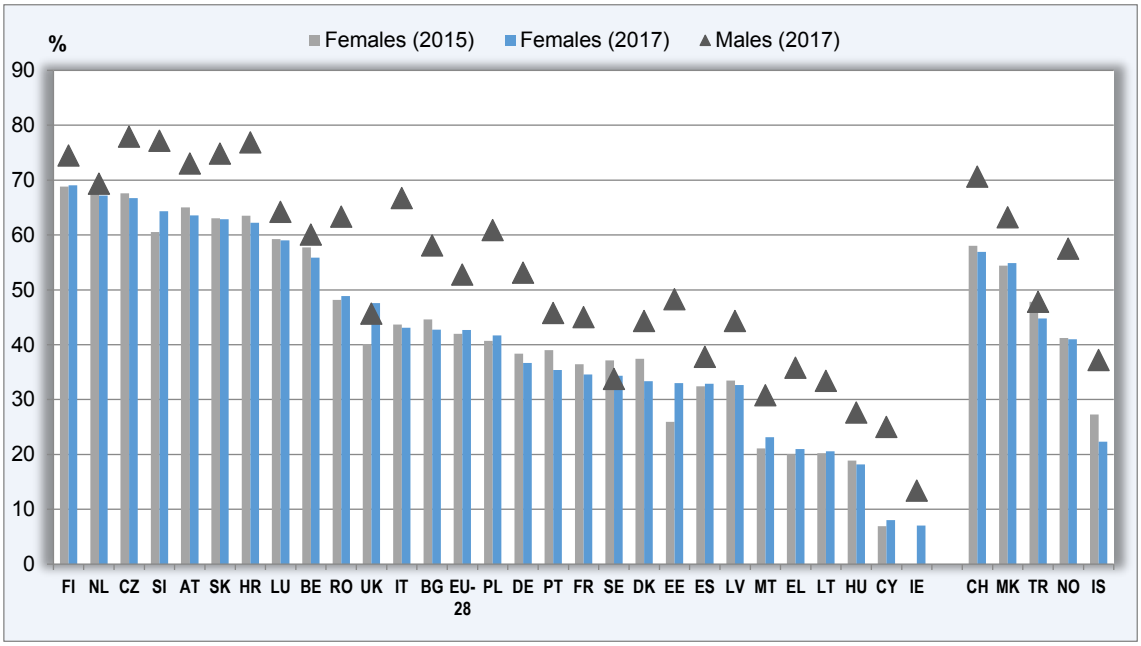
8. Are female students less likely to participate in IVET?

Indicator 1070: female IVET students as a share of all female upper secondary students

Of particular interest is the extent to which different groups are more or less likely to participate in VET. Data considered here focus on participation in IVET for female students, whose levels of participation are traditionally lower than for male students.

The indicator below is defined as the number of female upper secondary students (ISCED 3) enrolled in IVET programmes, expressed as a percentage of the total number of female upper secondary students. The same indicator specified for males is presented as a basis for comparison. EU averages are estimated from available country data.

Figure 8. **Female IVET students as % of all female upper secondary students, including comparison with a similar indicator for males**



Source: Cedefop calculations based on Eurostat data/UOE data collection on education systems.

Key points

In 2017, nearly half (47.8%, indicator 1010) of all upper secondary students in the EU were enrolled in vocational programmes. Participation among male students (52.8%) was significantly higher than among female students (42.7%). Enrolment of female students in the vocational stream was more than 50% in nine EU Member States. The highest shares (more than 60%) were reported in Finland, the Netherlands, Czechia,

Slovenia, Austria, Slovakia and Croatia. Malta, Ireland, Cyprus, Hungary, Lithuania and Greece had the lowest shares (at less than 30%).

In nearly all EU Member States, enrolments in upper secondary IVET were lower among women than among men, particularly in Bulgaria, Germany, Estonia, Italy, Cyprus and Poland (by 15 percentage points or more). Only Sweden and the United Kingdom had a slightly higher participation level of female students in upper secondary IVET than of male students.

Between 2015 and 2017, the indicator rose 0.7 percentage points in the EU as a whole. Denmark (-4.1 percentage points) and Portugal (-3.6 percentage points) reported a decrease of more than three percentage points. The highest increase in participation was reported in the United Kingdom (+7.5 percentage points).

Among non-EU members, female participation in upper secondary IVET ranged between 22.3% in Iceland and 56.9% in Switzerland.

Table 8. **Female IVET students as % of all female upper secondary students, including comparison with a similar indicator for males**

Country code	Country	Female IVET							Male	
		2015		2017		Recent change			2017	
		Value	Flag	Value	Flag	Range	Country	EU-28	Value	Flag
EU-28	European Union (28)	42.0	ce	42.7	ce	'15-'17	0.7		52.8	
BE	Belgium	57.8		55.9		'15-'17	-1.9	0.7	60.1	
BG	Bulgaria	44.6		42.7		'15-'17	-1.9	0.7	58.1	
CZ	Czechia	67.6		66.7		'15-'17	-0.8	0.7	77.9	
DK	Denmark	37.4		33.3		'15-'17	-4.1	0.7	44.3	
DE	Germany	38.4		36.6		'15-'17	-1.7	0.7	53.1	
EE	Estonia	26.0		33.0		'15-'17	7.1	0.7	48.3	
IE	Ireland		Z	7.0		'15-'17		0.7	13.4	
EL	Greece	20.1		21.0		'15-'17	0.9	0.7	35.8	
ES	Spain	32.4		32.9		'15-'17	0.5	0.7	37.8	
FR	France	36.5		34.6		'15-'17	-1.9	0.7	45.0	
HR	Croatia	63.5		62.2		'15-'17	-1.3	0.7	76.9	
IT	Italy	43.7		43.1		'15-'17	-0.5	0.7	66.7	
CY	Cyprus	6.9		8.0		'15-'17	1.1	0.7	25.0	
LV	Latvia	33.5		32.6		'15-'17	-0.8	0.7	44.3	
LT	Lithuania	20.2		20.6		'15-'17	0.3	0.7	33.4	
LU	Luxembourg	59.3		59.0		'15-'17	-0.2	0.7	64.2	
HU	Hungary	18.9		18.1		'15-'17	-0.7	0.7	27.6	
MT	Malta	21.1		23.1		'15-'17	2.0	0.7	30.8	
NL	Netherlands	67.7		67.2		'15-'17	-0.5	0.7	69.3	
AT	Austria	65.0		63.6		'15-'17	-1.4	0.7	73.0	
PL	Poland	40.7		41.7		'15-'17	1.0	0.7	60.9	
PT	Portugal	39.0		35.4		'15-'17	-3.6	0.7	45.8	
RO	Romania	48.1		48.9		'15-'17	0.7	0.7	63.3	
SI	Slovenia	60.5		64.3		'15-'17	3.8	0.7	77.2	
SK	Slovakia	63.0		62.9		'15-'17	-0.2	0.7	74.8	
FI	Finland	68.8		69.1		'15-'17	0.3	0.7	74.5	
SE	Sweden	37.1		34.4		'15-'17	-2.8	0.7	33.7	
UK	United Kingdom	40.1		47.6		'15-'17	7.5	0.7	45.6	
IS	Iceland	27.3		22.3		'15-'17	-5.0	0.7	37.2	
MK	North Macedonia	54.4		54.9		'15-'17	0.5	0.7	63.2	
NO	Norway	41.2		41.0		'15-'17	-0.3	0.7	57.5	
CH	Switzerland	58.0		56.9		'15-'17	-1.1	0.7	70.6	
TR	Turkey	47.8		44.8		'15-'17	-3.0	0.7	47.8	

(ce) Cedefop estimate based on available country data.

(z) Eurostat: 'not applicable'.

Source: Cedefop calculations based on Eurostat data/UOE data collection on education systems.

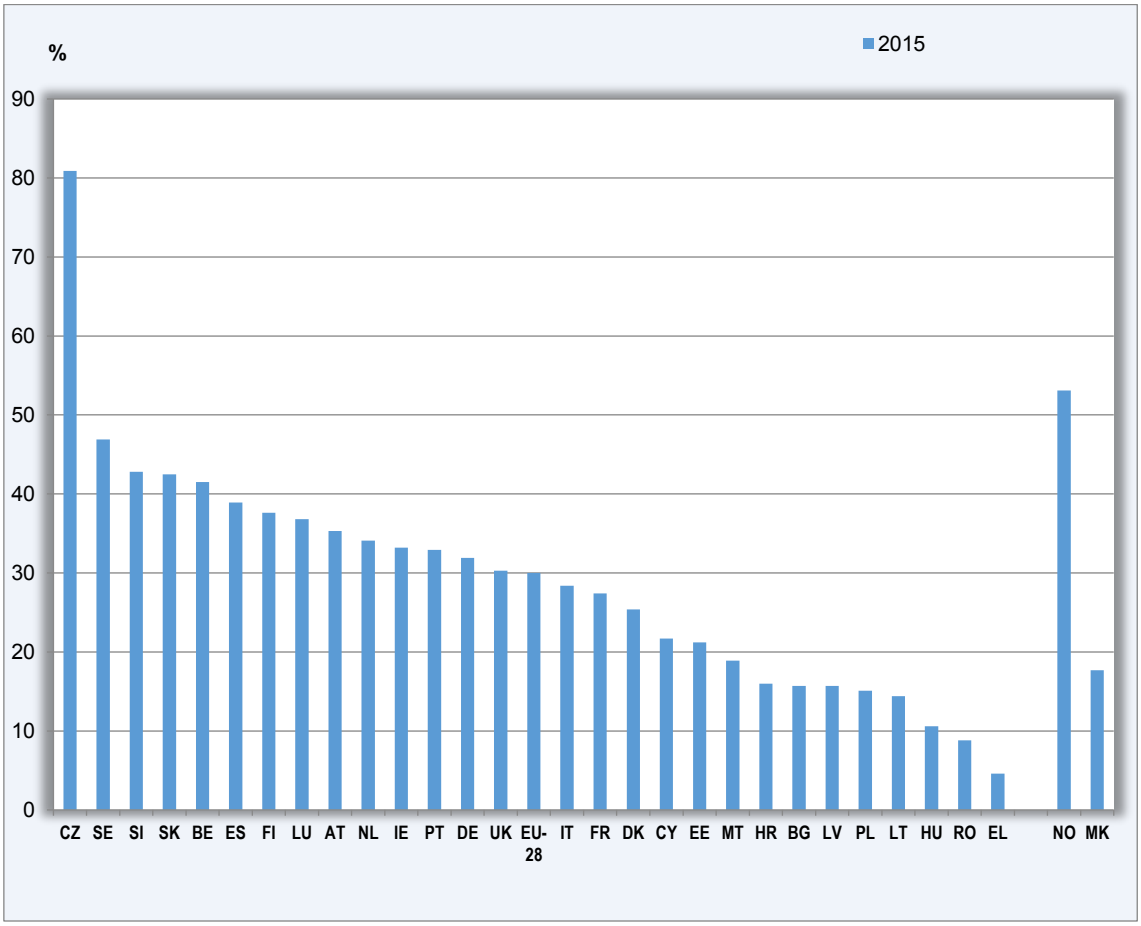
9. How many workers in small firms participate in CVT courses?

Indicator 1075: workers in small firms participating in CVT courses

Worker participation rates in training are dependent on the size of the firm where they are employed.

The indicator is defined as the percentage of those employed in small enterprises (with 10 to 49 persons employed) who participated in employer-sponsored CVT courses in the reference calendar year for the survey (2015). The indicator can be compared directly to indicator 1030 (workers participating in CVT courses) and it is typically lower than that.

Figure 9. **Workers in small firms participating in CVT courses (%)**



Source: Eurostat, continuing vocational training survey.

Key points

On average, 30% of those employed in small firms in the EU participated in CVT courses in 2015, which is considerably lower than the corresponding share in all firms (regardless of size) at 40.8% (indicator 1030).

The share of those employed in small firms participating in CVT was the highest in Czechia (at 80.9%), followed by Sweden, Slovenia, Slovakia and Belgium (all higher than 40%). The lowest participation levels were reported in Greece and Romania (less than 10%). Among non-EU countries data were only available for Norway (53.1%) and Northern Macedonia (17.7%).

Table 9. **Employees in small firms participating in CVT courses (%)**

Country code	Country	2015	
		Value	Flag
EU-28	European Union (28)	30.0	
BE	Belgium	41.5	
BG	Bulgaria	15.7	
CZ	Czechia	80.9	
DK	Denmark	25.4	
DE	Germany	31.9	
EE	Estonia	21.2	
IE	Ireland	33.2	
EL	Greece	4.6	
ES	Spain	38.9	
FR	France	27.4	
HR	Croatia	16.0	
IT	Italy	28.4	
CY	Cyprus	21.7	
LV	Latvia	15.7	
LT	Lithuania	14.4	
LU	Luxembourg	36.8	
HU	Hungary	10.6	
MT	Malta	18.9	
NL	Netherlands	34.1	
AT	Austria	35.3	
PL	Poland	15.1	
PT	Portugal	32.9	
RO	Romania	8.8	
SI	Slovenia	42.8	
SK	Slovakia	42.5	
FI	Finland	37.6	
SE	Sweden	46.9	
UK	United Kingdom	30.3	
IS	Iceland		
MK	North Macedonia	17.7	
NO	Norway	53.1	
CH	Switzerland		
TR	Turkey		

Source: Eurostat, continuing vocational training survey.

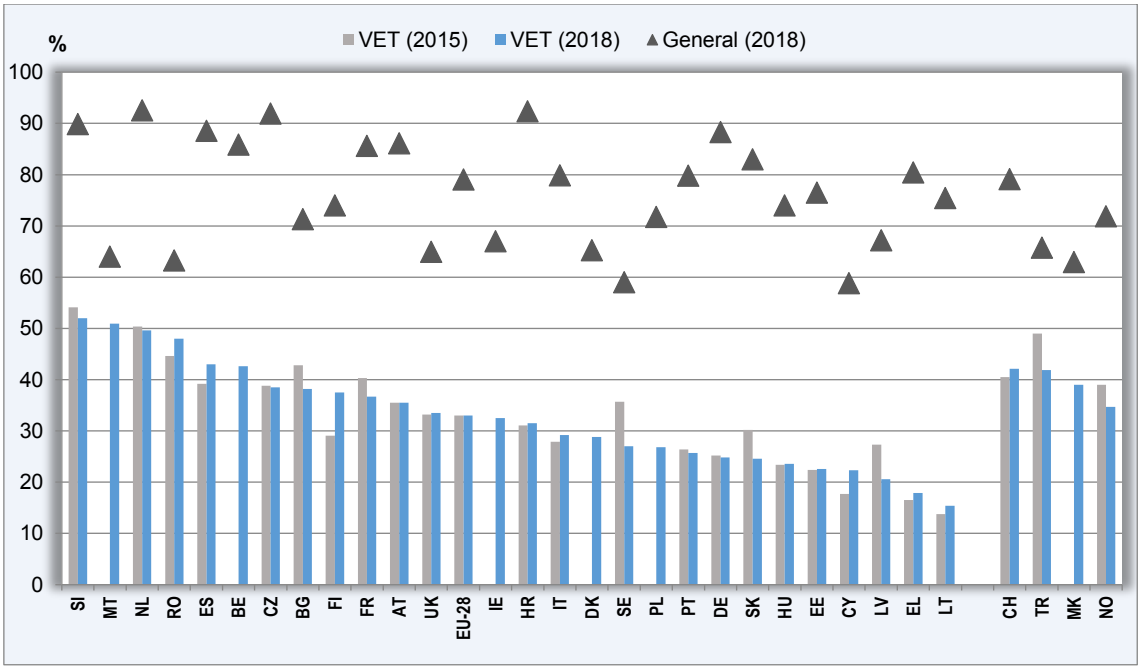
10. How many VET graduates continue in further education and training?

Indicator 1080: participation of VET graduates (18 to 24 year-olds) in further education and training

For VET to be an attractive learning option, young VET graduates should experience smooth transitions not only to the labour market but also, if they wish, to further learning opportunities. This is particularly important in countries where VET suffers from poor parity of esteem with general education.

The indicator below is defined as the share of VET graduates (ISCED 3-4) aged 18 to 24 who participated in further formal or non-formal education and training in the four weeks prior to the survey.

Figure 10. **Young VET graduates in further education and training (%), including comparison with a similar indicator for graduates from upper secondary general education**



Source: Cedefop calculations based on Eurostat, EU labour force survey.

Key points

In 2018, in the EU, 33% of VET graduates aged 18 to 24, declared having been participating in further education and training over the four weeks prior to the survey. This share is considerably lower than that among general education graduates in the same age range (at 79.1% in the EU in 2018). These data reflect structural differences between general and vocational education, with the former mainly preparing people for further studies and the latter mainly preparing people for the labour market. Nevertheless, with on average one third

of EU VET graduates continuing in further education and training, these numbers show that VET is not a dead-end pathway.

Participation rates of VET graduates aged 18 to 24 in further education and training varied significantly across countries. The highest rates in 2018 were found in Slovenia (52%), Malta (50.9%) and the Netherlands (49.6%). Lithuania (15.4%) Greece (17.9%) and Latvia (20.6%) reported the lowest shares.

Between 2015 and 2018, participation rates in the EU as a whole remained stable. Finland (+8.4 percentage points) reported an important increase in participation, while participation decreased strongly in Sweden (-8.7 percentage points) and Latvia (-6.7 percentage points). Break in time series occurred in Belgium, Denmark, Ireland, Malta and Poland, so their data for 2018 cannot be reliably compared with those for 2015.

Participation rates in the non-EU countries were relatively high compared to EU Member States. In Norway (34.7%), North Macedonia (39%), Switzerland (42.1%) and Turkey (41.9%), the participation rates were all higher than the EU average of 33% in 2018.

Table 10. **Young VET graduates in further education and training (%), including comparison with a similar indicator for graduates from upper secondary general education**

Country code	Country	VET							General	
		2015		2018		Recent change			2018	
		Value	Flag	Value	Flag	Range	Country	EU-28	Value	Flag
EU-28	European Union (28)	33.0		33.0		'15-'18			79.1	
BE	Belgium			42.6	b	'15-'18			85.9	
BG	Bulgaria	42.8		38.2		'15-'18	-4.6		71.3	
CZ	Czechia	38.8		38.5		'15-'18	-0.3		91.9	
DK	Denmark			28.8	b	'15-'18			65.2	
DE	Germany	25.2		24.8		'15-'18	-0.4		88.3	
EE	Estonia	22.4		22.6		'15-'18	0.2		76.5	
IE	Ireland			32.5	b	'15-'18			67.0	
EL	Greece	16.5		17.9		'15-'18	1.4		80.4	
ES	Spain	39.2		43.0		'15-'18	3.8		88.5	
FR	France	40.3		36.7		'15-'18	-3.6		85.6	
HR	Croatia	31.1		31.5		'15-'18	0.4		92.3	
IT	Italy	27.9		29.2		'15-'18	1.3		79.9	
CY	Cyprus	17.7	u	22.3		'15-'18	4.6		58.8	
LV	Latvia	27.3		20.6		'15-'18	-6.7		67.2	
LT	Lithuania	13.8		15.4		'15-'18	1.6		75.4	
LU	Luxembourg		u		u	'15-'18			71.0	
HU	Hungary	23.4		23.6		'15-'18	0.2		74.0	
MT	Malta			50.9	b	'15-'18			64.0	
NL	Netherlands	50.4		49.6		'15-'18	-0.8		92.5	
AT	Austria	35.5		35.5		'15-'18	0.0		86.1	
PL	Poland			26.8	b	'15-'18			71.7	
PT	Portugal	26.4		25.7		'15-'18	-0.7		79.8	
RO	Romania	44.6		48.0		'15-'18	3.4		63.2	
SI	Slovenia	54.1		52.0		'15-'18	-2.1		89.9	
SK	Slovakia	30.2		24.6		'15-'18	-5.6		83.0	
FI	Finland	29.1		37.5		'15-'18	8.4		74.0	
SE	Sweden	35.7		27.0		'15-'18	-8.7		59.0	
UK	United Kingdom	33.2		33.5		'15-'18	0.3		64.9	
IS	Iceland	33.8				'15-'18			61.9	
MK	North Macedonia			39.0		'15-'18			62.9	
NO	Norway	39.0		34.7		'15-'18	-4.3		71.9	
CH	Switzerland	40.5		42.1		'15-'18	1.6		79.1	
TR	Turkey	49.0		41.9		'15-'18	-7.1		65.8	

(b) Eurostat: 'break in time series'.
(u) Eurostat: 'low reliability'.
Source: Cedefop calculations based on Eurostat, EU labour force survey.

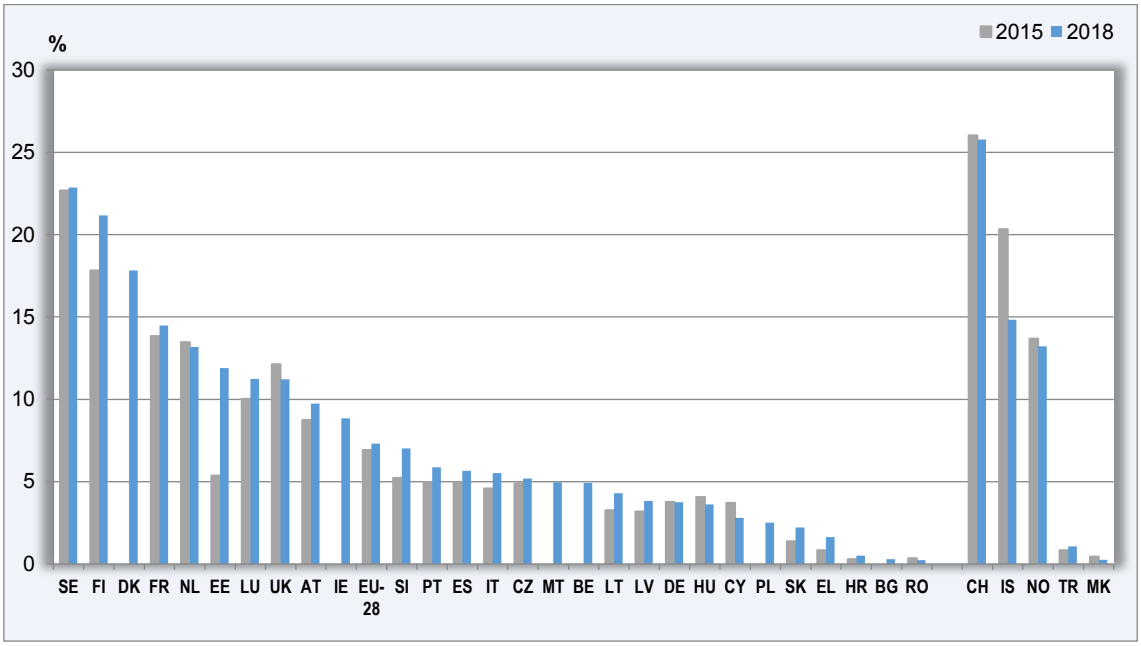
11. Are older people sufficiently engaged in education and training?

Indicator 1090: older adults in lifelong learning

Given current demographic trends, speed of technological change and the ageing of the workforce it is likely that older people will increasingly need to broaden and update their skills to meet labour market challenges. This means an increased need for lifelong learning, to which VET should positively contribute.

The indicator below is defined as the percentage of older adults (aged 50 to 64) who participated in education or training in the four weeks preceding the survey; it is a measure of lifelong learning among older adults.

Figure 11. **Older adults in lifelong learning (%)**



Source: Cedefop calculations based on Eurostat, EU labour force survey.

Key points

In 2018, in the EU, 7.3% of older adults (aged 50 to 64) participated in education and training over the four weeks prior to the survey. This is a lower share than the 11.1% recorded for all adults (indicator 1050). The Nordic countries – Sweden (22.9%), Finland (21.2%) and Denmark (17.8%) – reported the highest shares in 2018 (higher than 15%). Those three countries also had the highest participation rates of adults aged 25 to 64 in lifelong learning (indicator 1050) in 2018. Participation of older adults in lifelong learning was the lowest in Romania, Bulgaria and Croatia (all three less than 1%, flags indicate low reliability of estimates for these countries).

In the EU, participation in lifelong learning among older adults rose by 0.4 percentage points between 2015 and 2018. The increase during this period was the strongest in Estonia (+6.5 percentage points). Break in time series occurred in Belgium, Denmark, Ireland, Malta and Poland, so their data for 2018 cannot be reliably compared with those for 2015.

Among non-EU countries, Switzerland (25.8%), Iceland (14.8%) and Norway (13.2%) had 2018 participation levels higher than the EU average (but with a negative trend between 2015 and 2018). Iceland had a noticeable reduction of 5.5 percentage points in the participation rate between 2015 and 2018.

Table 11. **Older adults in lifelong learning (%)**

Country code	Country	2015		2018		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	6.9		7.3		'15-'18	0.4	
BE	Belgium			4.9	b	'15-'18		
BG	Bulgaria		u	0.3	u	'15-'18		0.4
CZ	Czechia	4.9		5.2		'15-'18	0.3	0.4
DK	Denmark			17.8	b	'15-'18		
DE	Germany	3.8		3.8		'15-'18	0.0	0.4
EE	Estonia	5.4		11.9		'15-'18	6.5	0.4
IE	Ireland			8.9	b	'15-'18		
EL	Greece	0.8		1.6		'15-'18	0.8	0.4
ES	Spain	5.0		5.7		'15-'18	0.7	0.4
FR	France	13.8		14.5		'15-'18	0.6	0.4
HR	Croatia	0.3	u	0.5	u	'15-'18	0.2	0.4
IT	Italy	4.6		5.5		'15-'18	0.9	0.4
CY	Cyprus	3.7		2.8		'15-'18	-0.9	0.4
LV	Latvia	3.2		3.8		'15-'18	0.6	0.4
LT	Lithuania	3.3		4.3		'15-'18	1.0	0.4
LU	Luxembourg	10.0		11.2		'15-'18	1.2	0.4
HU	Hungary	4.1		3.6		'15-'18	-0.4	0.4
MT	Malta			5.0	b	'15-'18		
NL	Netherlands	13.5		13.2		'15-'18	-0.3	0.4
AT	Austria	8.8		9.7		'15-'18	1.0	0.4
PL	Poland			2.5	b	'15-'18		
PT	Portugal	5.0		5.9		'15-'18	0.9	0.4
RO	Romania	0.3		0.2	u	'15-'18	-0.1	0.4
SI	Slovenia	5.2		7.0		'15-'18	1.8	0.4
SK	Slovakia	1.4		2.2		'15-'18	0.8	0.4
FI	Finland	17.8		21.2		'15-'18	3.3	0.4
SE	Sweden	22.7		22.9		'15-'18	0.2	0.4
UK	United Kingdom	12.1		11.2		'15-'18	-0.9	0.4
IS	Iceland	20.3		14.8		'15-'18	-5.5	0.4
MK	North Macedonia	0.4		0.2	u	'15-'18	-0.2	0.4
NO	Norway	13.7		13.2		'15-'18	-0.5	0.4
CH	Switzerland	26.0		25.8		'15-'18	-0.3	0.4
TR	Turkey	0.8		1.1		'15-'18	0.2	0.4

(b) Eurostat: 'break in time series'.

(u) Eurostat: 'low reliability'.

Source: Cedefop calculations based on Eurostat, EU labour force survey.

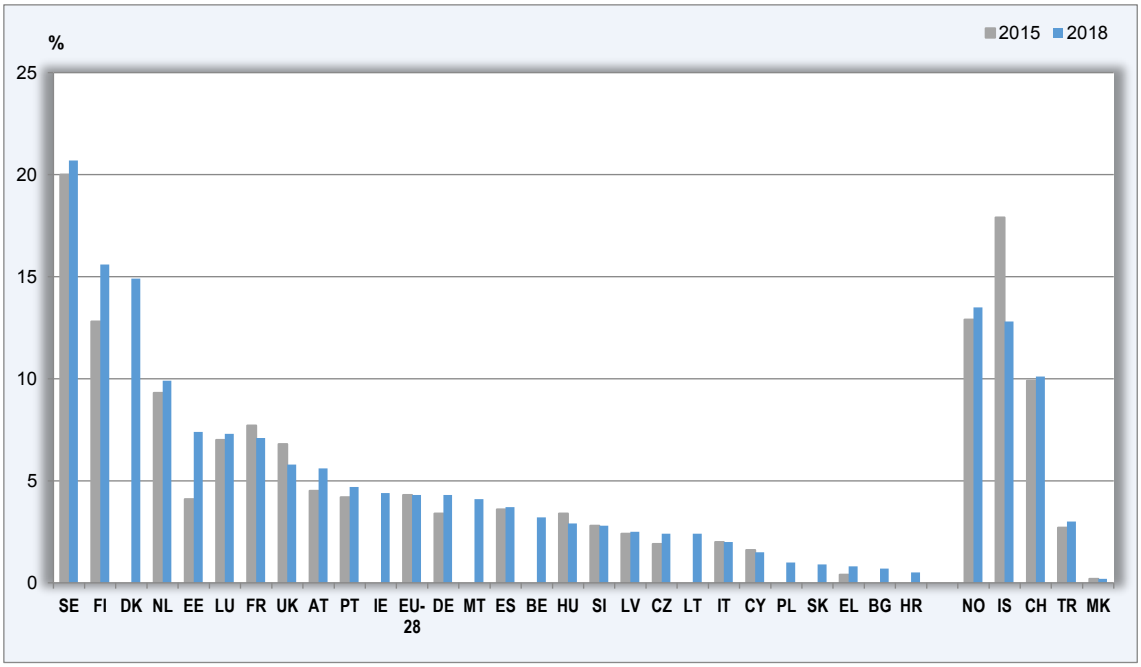
12. Do low-educated adults have fewer opportunities to participate in education and training?

Indicator 1100: low-educated adults in lifelong learning

To increase economic competitiveness and create a more equitable and inclusive society, lifelong learning should be a reality for everyone in the EU. Adult participation in lifelong learning should be increased, particularly for individuals and groups at risk of exclusion, such as those with a low level of education.

The indicator below is defined as the percentage of adults aged between 25 and 64 years old with, at most, a lower secondary qualification (ISCED 2), who participated in education and training in the four weeks prior to the EU labour force survey.

Figure 12. **Low-educated adults in lifelong learning (%)**



Source: Eurostat, EU labour force survey.

Key points

In 2018, 4.3% of low-educated adults in the EU participated in lifelong learning. This percentage is lower than the corresponding share of all adults (11.1%, indicator 1050). Sweden, Finland and Denmark reported the highest levels of participation in 2018, at 20.7%, 15.6% and 14.9 % respectively. Croatia, Bulgaria, Greece and Slovakia had the lowest participation levels among low-educated adults (less than 1%, flags indicate low reliability of estimates for these countries).

Between 2015 and 2018, the EU average share of low-educated adults participating in lifelong learning was relatively stable. Considerable increases by about 3 percentage points were estimated in Estonia (3.3) and Finland (2.8). Break in time series occurred in Belgium, Denmark, Ireland, Malta and Poland, so their data for 2018 cannot be reliably compared with those for 2015.

Among non-EU countries, Iceland, Norway and Switzerland had higher levels of participation than the EU average. The share of low-educated adults participating in lifelong learning in Turkey and North Macedonia was lower than the EU average.

Table 12. **Low-educated adults in lifelong learning (%)**

Country code	Country	2015		2018		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	4.3		4.3		'15-'18	0.0	
BE	Belgium			3.2	b	'15-'18		
BG	Bulgaria		u	0.7	u	'15-'18		0.0
CZ	Czechia	1.9		2.4		'15-'18	0.5	0.0
DK	Denmark			14.9	b	'15-'18		
DE	Germany	3.4		4.3		'15-'18	0.9	0.0
EE	Estonia	4.1		7.4		'15-'18	3.3	0.0
IE	Ireland			4.4	b	'15-'18		
EL	Greece	0.4		0.8		'15-'18	0.4	0.0
ES	Spain	3.6		3.7		'15-'18	0.1	0.0
FR	France	7.7		7.1		'15-'18	-0.6	0.0
HR	Croatia		u	0.5	u	'15-'18		0.0
IT	Italy	2.0		2.0		'15-'18	0.0	0.0
CY	Cyprus	1.6		1.5	u	'15-'18	-0.1	0.0
LV	Latvia	2.4		2.5		'15-'18	0.1	0.0
LT	Lithuania		u	2.4	u	'15-'18	2.4	0.0
LU	Luxembourg	7.0		7.3		'15-'18	0.3	0.0
HU	Hungary	3.4		2.9		'15-'18	-0.5	0.0
MT	Malta			4.1	b	'15-'18		
NL	Netherlands	9.3		9.9		'15-'18	0.6	0.0
AT	Austria	4.5		5.6		'15-'18	1.1	0.0
PL	Poland		u	1.0	b	'15-'18		
PT	Portugal	4.2		4.7		'15-'18	0.5	0.0
RO	Romania	0.3	u		u	'15-'18		0.0
SI	Slovenia	2.8		2.8	u	'15-'18	0.0	0.0
SK	Slovakia		u	0.9	u	'15-'18		0.0
FI	Finland	12.8		15.6		'15-'18	2.8	0.0
SE	Sweden	20.0		20.7		'15-'18	0.7	0.0
UK	United Kingdom	6.8		5.8		'15-'18	-1.0	0.0
IS	Iceland	17.9		12.8		'15-'18	-5.1	0.0
MK	North Macedonia	0.2	u	0.2	u	'15-'18	0.0	0.0
NO	Norway	12.9		13.5		'15-'18	0.6	0.0
CH	Switzerland	9.9		10.1		'15-'18	0.2	0.0
TR	Turkey	2.7		3.0		'15-'18	0.3	0.0

(b) Eurostat: 'break in time series'.

(u) Eurostat: 'low reliability'.

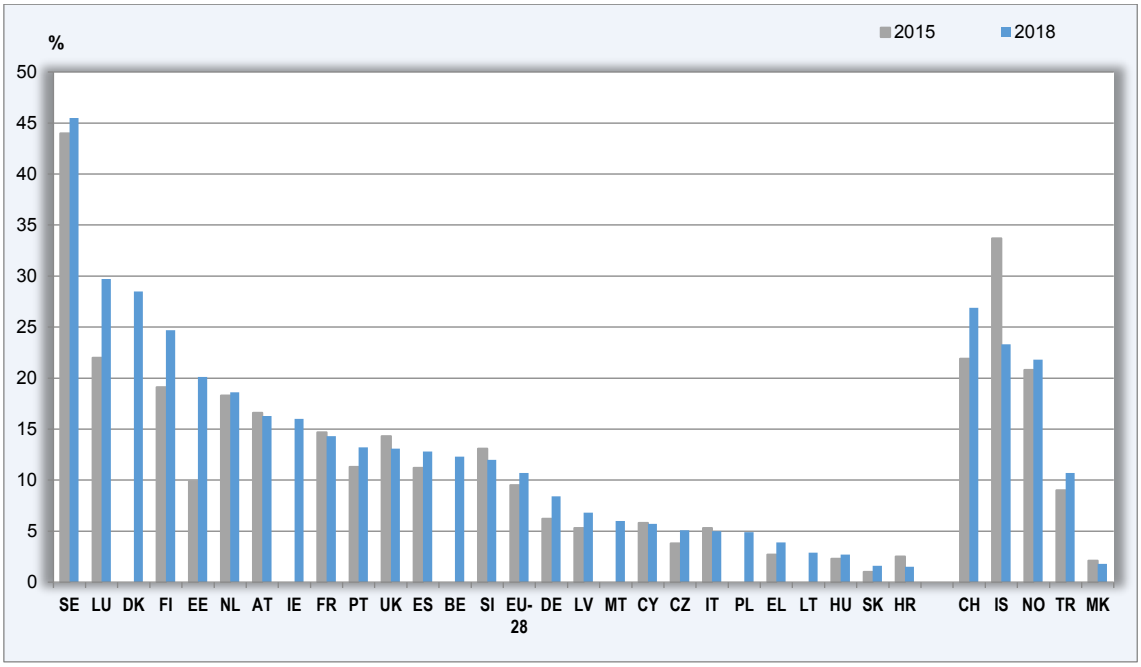
Source: Eurostat, EU labour force survey.

13. Do unemployed adults participate in education and training?

Indicator 1110: unemployed adults in lifelong learning

Participation in education and training can maintain or increase the employability of unemployed persons. The indicator below is defined as the percentage of unemployed adults aged 25 to 64 who participated in education and training (lifelong learning) in the four weeks preceding the EU labour force survey.

Figure 13. **Unemployed adults in lifelong learning (%)**



Source: Eurostat, EU labour force survey.

Key points

In 2018, on average 10.7% of unemployed adults in the EU reported that they participated lifelong learning. This was slightly below the EU average for all adults, regardless of their employment (11.1%, indicator 1050). By far the highest levels of participation by unemployed adults in lifelong learning in 2018 was estimated for Sweden (45.5%), followed by Luxembourg (29.7%) and Denmark (28.5%). The lowest levels of participation in 2018 were estimated for Croatia (1.5%) and Slovakia (1.6%).

Between 2015 and 2018, the EU average participation rate for the unemployed increased by 1.2 percentage points. The indicator increased the most in Estonia (+10.2 percentage points). The United Kingdom and Slovenia reported the strongest decline (respectively 1.2 percentage points and 1.1 percentage points). Break in time

series occurred in Belgium, Denmark, Ireland, Malta and Poland so that their data for 2018 cannot be reliably compared with those for 2015.

Outside the EU, participation rates in Iceland, Norway and Switzerland were at least twice as high as the EU average in 2018. However, the participation rate declined strongly in Iceland with 10.4 percentage points, from 33.7% in 2015 to 23.3% in 2018. The participation rate in North Macedonia was much lower than the EU average (1.8%). Turkey had a participation rate equal to the EU average (10.7%).

Table 13. **Unemployed adults in lifelong learning (%)**

Country code	Country	2015		2018		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	9.5		10.7		'15-'18	1.2	
BE	Belgium			12.3	b	'15-'18		
BG	Bulgaria		u		u	'15-'18		
CZ	Czechia	3.8		5.1		'15-'18	1.3	1.2
DK	Denmark			28.5	b	'15-'18		
DE	Germany	6.2		8.4		'15-'18	2.2	1.2
EE	Estonia	9.9		20.1		'15-'18	10.2	1.2
IE	Ireland			16.0	b	'15-'18		
EL	Greece	2.7		3.9		'15-'18	1.2	1.2
ES	Spain	11.2		12.8		'15-'18	1.6	1.2
FR	France	14.7		14.3		'15-'18	-0.4	1.2
HR	Croatia	2.5	u	1.5	u	'15-'18	-1.0	1.2
IT	Italy	5.3		5.0		'15-'18	-0.3	1.2
CY	Cyprus	5.8		5.7		'15-'18	-0.1	1.2
LV	Latvia	5.3		6.8		'15-'18	1.5	1.2
LT	Lithuania		u	2.9	u	'15-'18		1.2
LU	Luxembourg	22.0		29.7		'15-'18	7.7	1.2
HU	Hungary	2.3		2.7	u	'15-'18	0.4	1.2
MT	Malta		u	6.0	bu	'15-'18		
NL	Netherlands	18.3		18.6		'15-'18	0.3	1.2
AT	Austria	16.6		16.3		'15-'18	-0.3	1.2
PL	Poland			4.9	b	'15-'18		
PT	Portugal	11.3		13.2		'15-'18	1.9	1.2
RO	Romania	2.1	u		u	'15-'18		1.2
SI	Slovenia	13.1		12.0		'15-'18	-1.1	1.2
SK	Slovakia	1.0	u	1.6	u	'15-'18	0.6	1.2
FI	Finland	19.1		24.7		'15-'18	5.6	1.2
SE	Sweden	44.0		45.5		'15-'18	1.5	1.2
UK	United Kingdom	14.3		13.1		'15-'18	-1.2	1.2
IS	Iceland	33.7		23.3		'15-'18	-10.4	1.2
MK	North Macedonia	2.1		1.8		'15-'18	-0.3	1.2
NO	Norway	20.8		21.8		'15-'18	1.0	1.2
CH	Switzerland	21.9		26.9		'15-'18	5.0	1.2
TR	Turkey	9.0		10.7		'15-'18	1.7	1.2

(b) Eurostat: 'break in time series'.

(u) Eurostat: 'low reliability'.

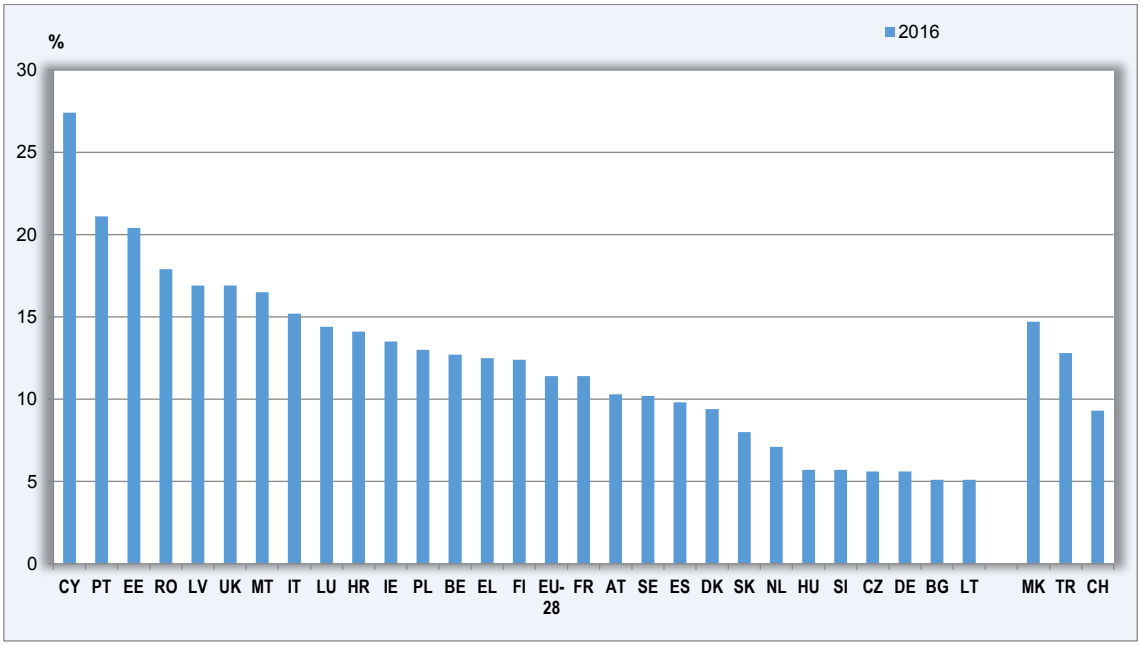
Source: Eurostat, EU labour force survey.

14. How many adults did not participate in lifelong learning, even if interested in doing so?

Indicator 1120: individuals who wanted to participate in training, but did not

Adult learning policies should aim to remove barriers to participation in continuing education and training. That is why it is interesting to consider the proportion of adults who initially wanted to participate in adult education, but eventually did not. The indicator below is defined as the share of adults (aged 25 to 64) who wanted to participate in training but did not do so.

Figure 14. **Individuals who wanted to participate in training but did not (%)**



Source: Eurostat, adult education survey.

Key points

In 2016, 11.4% of adults between 25 and 64 years old were interested in participating in education or training, but they eventually did not participate. This percentage was the highest in Cyprus (27.4%), Portugal (21.1%) and Estonia (20.4%). In Bulgaria and Lithuania, the lowest proportion of adults (5.1%) answered that they did not participate in adult education, although they wanted to do so.

Outside the EU countries, the share of adults who wanted to participate in education and training but did not do so was higher than the EU average in North Macedonia (14.7%) and Turkey (12.8%). The percentage in Switzerland was 9.3%, which was lower than the EU average.

Table 14. **Individuals who wanted to participate in training but did not (%)**

Country code	Country	2016	
		Value	Flag
EU-28	European Union (28)	11.4	
BE	Belgium	12.7	
BG	Bulgaria	5.1	
CZ	Czechia	5.6	
DK	Denmark	9.4	
DE	Germany	5.6	
EE	Estonia	20.4	
IE	Ireland	13.5	
EL	Greece	12.5	
ES	Spain	9.8	
FR	France	11.4	
HR	Croatia	14.1	
IT	Italy	15.2	
CY	Cyprus	27.4	
LV	Latvia	16.9	
LT	Lithuania	5.1	
LU	Luxembourg	14.4	
HU	Hungary	5.7	
MT	Malta	16.5	
NL	Netherlands	7.1	
AT	Austria	10.3	
PL	Poland	13.0	
PT	Portugal	21.1	
RO	Romania	17.9	
SI	Slovenia	5.7	
SK	Slovakia	8.0	
FI	Finland	12.4	
SE	Sweden	10.2	
UK	United Kingdom	16.9	
IS	Iceland		
MK	North Macedonia	14.7	
NO	Norway		
CH	Switzerland	9.3	
TR	Turkey	12.8	

NB: Information from the 2016 adult education survey is used to approximate the situation in the 2015 baseline year.
(b) Eurostat: 'break in time series'.
Source: Eurostat, adult education survey.

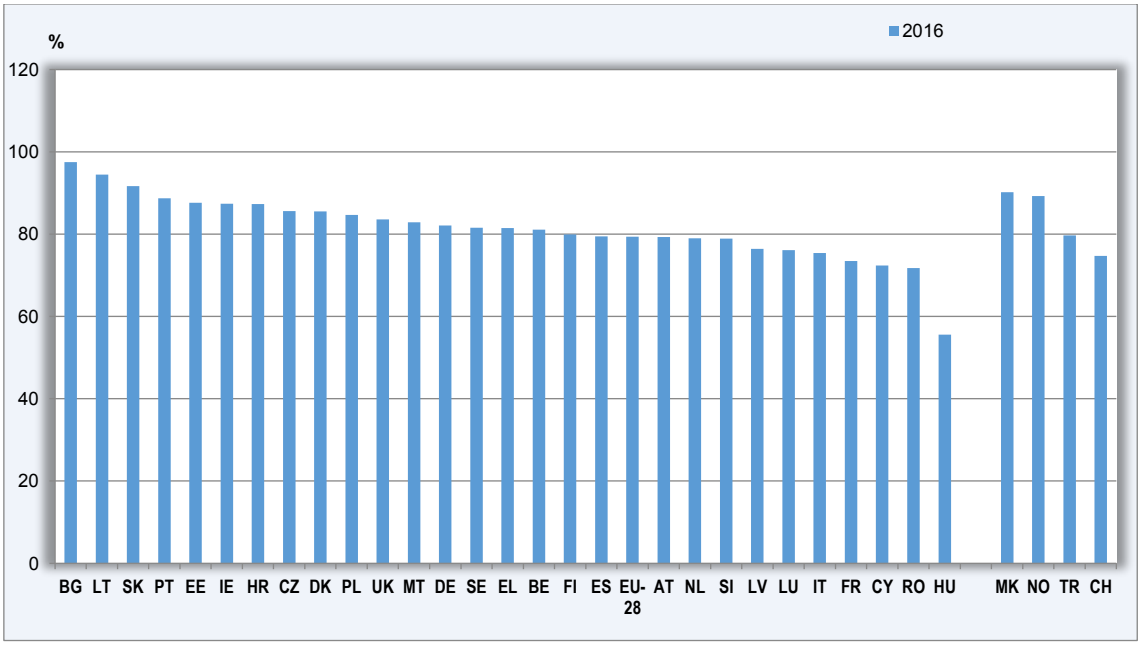
15. How big is the share of job-related learning in adults' non-formal education and training?

Indicator 1130: job-related non-formal education and training

Continuing vocational education and training (CVET) has the potential to address a number of EU-2020 challenges by supporting, among others, lifelong learning, employability, integration and inclusion.

The indicator is defined as the share of non-formal job-related learning activities as a percentage of all non-formal learning activities. The indicator considers activities carried out in the 12 months prior to the survey by adults aged 25 to 64. Despite the fact that the indicator is not expressed in head count terms, and does not account for formal education and the learning, it is intended to provide an indication of the contribution of CVET to lifelong learning.

Figure 15. **Job-related non-formal adult education and training (%)**



Source: Eurostat, adult education survey.

Key points

In 2016, 79.4% of all non-formal learning activities undertaken by adults (aged 25 to 64) in the EU was job-related. This percentage was the highest in Bulgaria (97.5%), Lithuania (94.5%) and Slovakia (91.7%). The proportion was the lowest in Hungary at

55.6%. This was a remarkably low percentage, compared to the other EU Member States. The second lowest proportion was reported in Romania at 71.8%.

In the non-EU countries, the share of the job-related component in non-formal lifelong learning activities ranged between 74.7% (Switzerland, below the EU average) and 90.2% (North Macedonia).

Table 15. **Job-related non-formal adult education and training (%)**

Country code	Country	2016	
		Value	Flag
EU-28	European Union (28)	79.4	
BE	Belgium	81.1	
BG	Bulgaria	97.5	
CZ	Czechia	85.6	
DK	Denmark	85.5	
DE	Germany	82.1	
EE	Estonia	87.6	
IE	Ireland	87.4	
EL	Greece	81.5	
ES	Spain	79.5	
FR	France	73.5	
HR	Croatia	87.3	
IT	Italy	75.4	
CY	Cyprus	72.4	
LV	Latvia	76.4	
LT	Lithuania	94.5	
LU	Luxembourg	76.1	
HU	Hungary	55.6	
MT	Malta	82.9	
NL	Netherlands	79.0	
AT	Austria	79.3	
PL	Poland	84.7	
PT	Portugal	88.7	
RO	Romania	71.8	
SI	Slovenia	78.9	
SK	Slovakia	91.7	
FI	Finland	79.9	
SE	Sweden	81.6	
UK	United Kingdom	83.6	
IS	Iceland		
MK	North Macedonia	90.2	
NO	Norway	89.3	
CH	Switzerland	74.7	
TR	Turkey	79.7	

NB: Information from the 2016 adult education survey is used to approximate the situation in the 2015 baseline year.
Source: Eurostat, adult education survey.

Part II

Skill development and labour market relevance

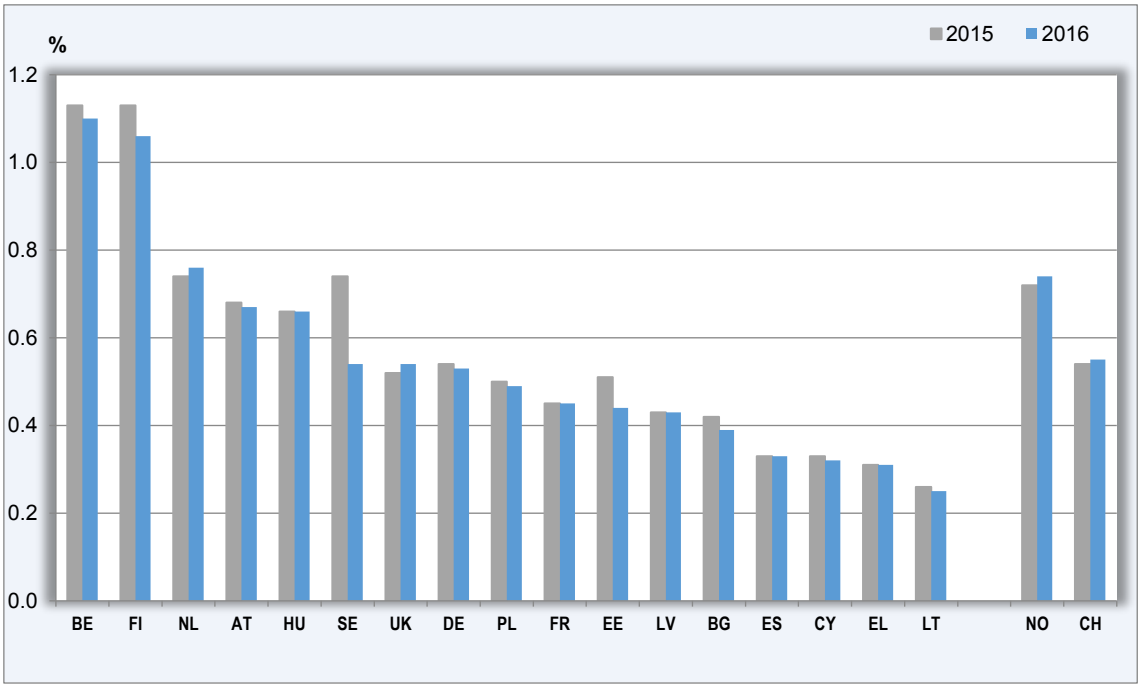
16. How big is investment in IVET?

Indicator 2010: IVET public expenditure (% of GDP)

Public expenditure on initial vocational education and training (IVET) provides an indication of the scale of investments in IVET made by governments. Analysing the trend in public expenditure gives an insight into whether the size of investments has changed over time.

The indicator is defined as public expenditure on vocational education at ISCED 3-4 as a percentage of GDP. EU averages are estimated as weighted averages of available country data. The countries' GDPs in current prices are used to calculate the country weights.

Figure 16. **IVET public expenditure (% of GDP)**



Source: Eurostat, UOE data collection on education systems.

Key points

In most countries for which data are available, spending on vocational education (at ISCED 3-4) accounted for less than 1% of GDP in 2016, with the exception of Belgium (1.1%) and Finland (1.1%). The EU weighted average value was estimated at 0.5% of GDP in 2016.

In 2016, levels of public expenditure on IVET were the lowest in Lithuania, Greece, Cyprus and Spain (at or about 0.3%). In all EU countries, public expenditure on IVET (as % of GDP) did not change more than 0.1 percentage points between 2015

and 2016, except for Sweden (-0.2 percentage points); here, however, comparison over time should be considered carefully due to possible methodological issues.

In the non-EU countries with available data, the level of expenditure ranged between 0.6% (Switzerland) and 0.7% (Norway) of GDP in 2016.

Table 16. **IVET public expenditure (% of GDP)**

Country code	Country	2015		2016		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	0.5	(ce)	0.5	(ce)	'15-'16	0.0	
BE	Belgium	1.1		1.1		'15-'16	0.0	0.0
BG	Bulgaria	0.4		0.4		'15-'16	0.0	0.0
CZ	Czechia	0.7				'15-'16		
DK	Denmark					'15-'16		
DE	Germany	0.5		0.5		'15-'16	0.0	0.0
EE	Estonia	0.5		0.4		'15-'16	-0.1	0.0
IE	Ireland	0.2			d	'15-'16		
EL	Greece	0.3	d	0.3		'15-'16	0.0	0.0
ES	Spain	0.3		0.3		'15-'16	0.0	0.0
FR	France	0.5		0.5		'15-'16	0.0	0.0
HR	Croatia					'15-'16		
IT	Italy		d		d	'15-'16		
CY	Cyprus	0.3		0.3		'15-'16	0.0	0.0
LV	Latvia	0.4		0.4		'15-'16	0.0	0.0
LT	Lithuania	0.3		0.3		'15-'16	0.0	0.0
LU	Luxembourg	0.6				'15-'16		
HU	Hungary	0.7		0.7		'15-'16	0.0	0.0
MT	Malta	0.3				'15-'16		
NL	Netherlands	0.7		0.8		'15-'16	0.0	0.0
AT	Austria	0.7		0.7		'15-'16	0.0	0.0
PL	Poland	0.5		0.5		'15-'16	0.0	0.0
PT	Portugal		d			'15-'16		
RO	Romania	0.1				'15-'16		
SI	Slovenia		d			'15-'16		
SK	Slovakia	0.7				'15-'16		
FI	Finland	1.1		1.1		'15-'16	-0.1	0.0
SE	Sweden	0.7		0.5		'15-'16	-0.2	0.0
UK	United Kingdom	0.5		0.5		'15-'16	0.0	0.0
IS	Iceland	0.5				'15-'16		
MK	North Macedonia					'15-'16		
NO	Norway	0.7		0.7		'15-'16	0.0	0.0
CH	Switzerland	0.5		0.6		'15-'16	0.0	0.0
TR	Turkey	0.5	d		u	'15-'16		0.0

(b) Eurostat: 'break in time series'.
(u) Eurostat: 'low reliability'.
(d) Eurostat: 'definition differs'.
(ce) Cedefop estimate based on available country data.
Source: Eurostat, UOE data collection on education systems.

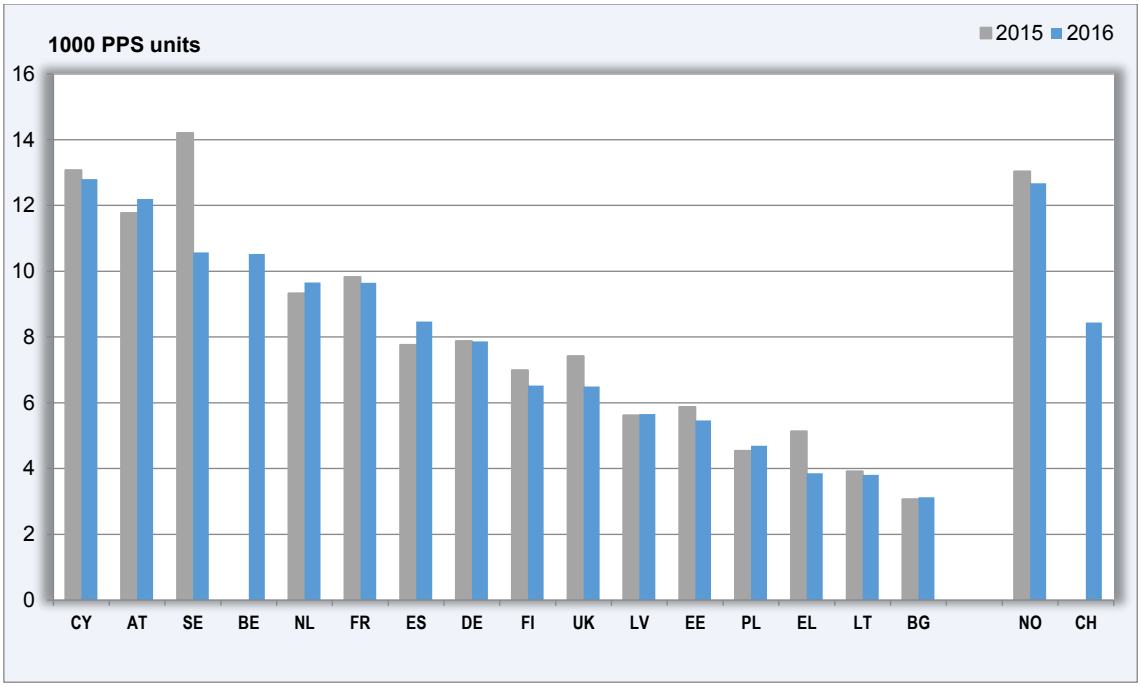
17. How much is spent per IVET student?

Indicator 2025: IVET public expenditure per student (1000 PPS units)

Public expenditure on initial vocational education and training (IVET) provides an indication of the scale of investments in IVET made by governments. When expressed relative to students enrolled, data account for the different sizes of the IVET systems.

The indicator below is defined as public expenditure on vocational education at ISCED 3-4 per student enrolled. It is expressed in thousands of purchasing parity standard (PPS) units ([30]). EU averages are estimated as weighted averages of available country figures. Enrolments in IVET are used for weighting.

Figure 17. **IVET public expenditure per student (1 000 PPS units)**



Source: Eurostat, UOE data collection on education systems.

Key points

Based on available country data, it was estimated that, in the EU on average, 7 427 PPS units were spent per student in 2016. There is a substantial variation in public

([30]) 'The purchasing power standard, abbreviated as PPS, is an artificial currency unit. Theoretically, one PPS can buy the same amount of goods and services in each country.' https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Purchasing_power_standard_(PPS)

expenditure across the EU, from more than 12 000 PPS units (Cyprus and Austria) to less than 4 000 PPS units (Bulgaria, Lithuania and Greece).

Data for non-EU countries were available for Norway (12 672 PPS units) and Switzerland (8 4367 PPS units). These two countries had higher public expenditure on IVET than the EU average.

Table 17. **IVET public expenditure per student (1 000 PPS units)**

Country code	Country	2015		2016		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	7.1	(ce)	7.4	(ce)	'15-'16	0.3	
BE	Belgium			10.5		'15-'16		
BG	Bulgaria	3.1		3.1		'15-'16	0.1	0.3
CZ	Czechia	5.9				'15-'16		
DK	Denmark					'15-'16		
DE	Germany	7.9		7.9		'15-'16	0.0	0.3
EE	Estonia	5.9		5.5		'15-'16	-0.4	0.3
IE	Ireland	5.4			d	'15-'16		
EL	Greece	5.1	d	3.9		'15-'16	-1.3	0.3
ES	Spain	7.8		8.5		'15-'16	0.7	0.3
FR	France	9.8		9.6		'15-'16	-0.2	0.3
HR	Croatia					'15-'16		
IT	Italy		d		d	'15-'16		
CY	Cyprus	13.1		12.8		'15-'16	-0.3	0.3
LV	Latvia	5.6		5.7		'15-'16	0.0	0.3
LT	Lithuania	3.9		3.8		'15-'16	-0.1	0.3
LU	Luxembourg	15.2				'15-'16		
HU	Hungary	7.1				'15-'16		
MT	Malta					'15-'16		
NL	Netherlands	9.3		9.7		'15-'16	0.3	0.3
AT	Austria	11.8		12.2		'15-'16	0.4	0.3
PL	Poland	4.5	d	4.7		'15-'16	0.2	0.3
PT	Portugal		d			'15-'16		
RO	Romania	0.3				'15-'16		
SI	Slovenia		d			'15-'16		
SK	Slovakia	5.6				'15-'16		
FI	Finland	7.0		6.5		'15-'16	-0.5	0.3
SE	Sweden	14.2		10.6		'15-'16	-3.6	0.3
UK	United Kingdom	7.4		6.5		'15-'16	-0.9	0.3
IS	Iceland	10.5				'15-'16		
MK	North Macedonia					'15-'16		
NO	Norway	13.0		12.7		'15-'16	-0.4	0.3
CH	Switzerland			8.4		'15-'16		
TR	Turkey	2.8	d			'15-'16		

(b) Eurostat: 'break in time series'.

(d) Eurostat: 'definition differs'.

(ce) Cedefop estimate based on available country data.

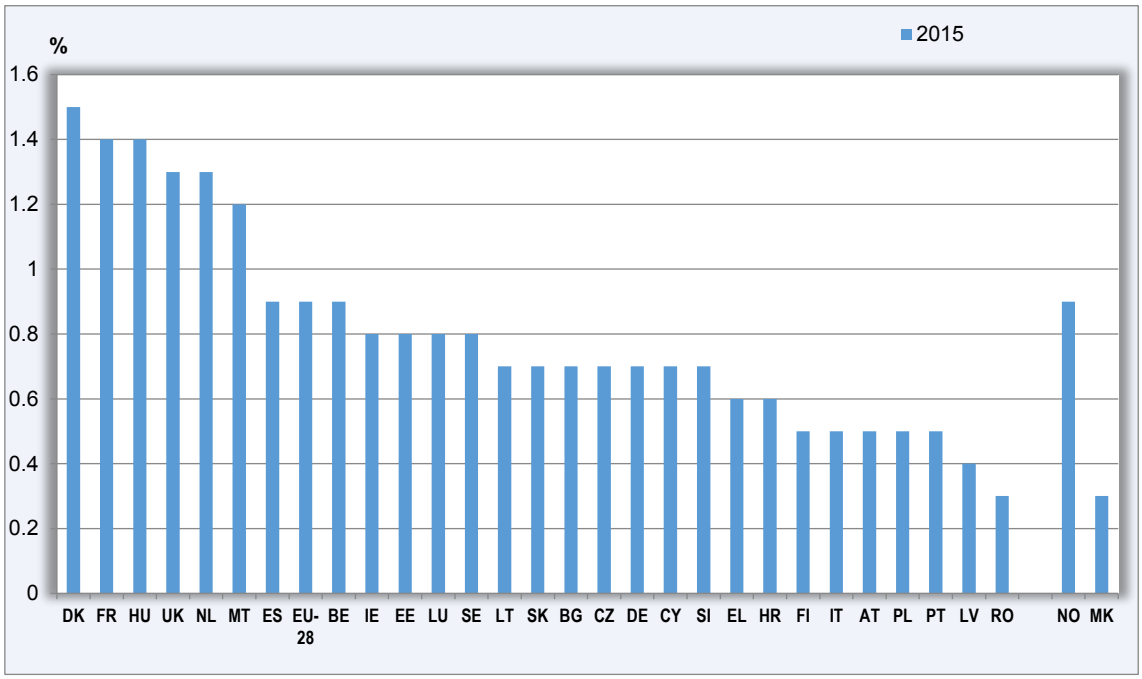
Source: Eurostat, UOE data collection on education systems.

18. How much do enterprises invest in continuing vocational training?

Indicator 2030: enterprise expenditure on CVT courses as share of total labour cost

A key aim of EU policy is that governments, individuals, and employers continue investing in skill development to strengthen social inclusion, and improve economic growth and competitiveness. The indicator below is defined as the total annual monetary expenditure on CVT courses paid by employers (excluding personnel absence costs which are susceptible to high measurement error). It is expressed as a percentage of the employers' total labour costs.

Figure 18. **Enterprise expenditure on CVT courses as % of total labour cost**



Source: Cedefop calculations based on Eurostat, continuing vocational training survey.

Key points

In the EU the average total monetary expenditure on CVT courses as a percentage of total labour costs was estimated at 0.9% in 2015. The highest values were reported in Denmark (1.5%), followed by France (1.4%), Hungary (1.4%), the United Kingdom (1.3%), the Netherlands (1.3%) and Malta (1.2%). All other countries reported enterprise expenditure on CVT courses below 1% of total labour cost. Romania and Latvia and had the lowest expenditure levels, at 0.3% and 0.4% respectively. The only non-EU countries for which data were available are Norway (0.9%) and North Macedonia (0.3%).

Table 18. **Enterprise expenditure on CVT courses as % of total labour cost**

Country code	Country	2015	
		Value	Flag
EU-28	European Union (28)	0.9	
BE	Belgium	0.9	
BG	Bulgaria	0.7	
CZ	Czechia	0.7	d
DK	Denmark	1.5	
DE	Germany	0.7	
EE	Estonia	0.8	
IE	Ireland	0.8	
EL	Greece	0.6	
ES	Spain	0.9	
FR	France	1.4	
HR	Croatia	0.6	
IT	Italy	0.5	
CY	Cyprus	0.7	
LV	Latvia	0.4	
LT	Lithuania	0.7	
LU	Luxembourg	0.8	
HU	Hungary	1.4	
MT	Malta	1.2	
NL	Netherlands	1.3	
AT	Austria	0.5	
PL	Poland	0.5	
PT	Portugal	0.5	
RO	Romania	0.3	
SI	Slovenia	0.7	
SK	Slovakia	0.7	
FI	Finland	0.5	
SE	Sweden	0.8	
UK	United Kingdom	1.3	
IS	Iceland		
MK	North Macedonia	0.3	
NO	Norway	0.9	
CH	Switzerland		
TR	Turkey		

(d) Eurostat: 'definition differs'.

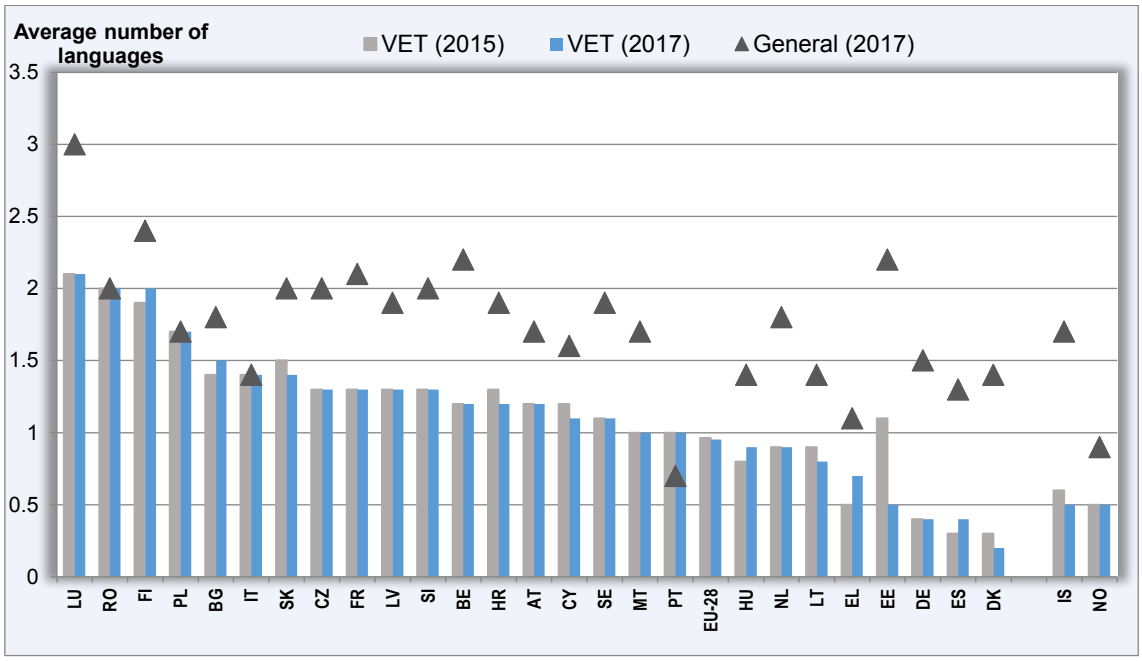
Source: Cedefop calculations based on Eurostat, continuing vocational training survey.

19. How many foreign languages are IVET students learning?

Indicator 2040: average number of foreign languages learned in IVET in upper secondary education

Knowledge of foreign languages enables individuals to participate in education programmes abroad or to seek employment in other Member States. Foreign language skills can also improve the competitiveness of the EU economy. The indicator below considers the extent to which foreign languages are taught in IVET programmes in Europe. The indicator is defined as the average number of foreign languages learned in upper secondary vocational education. EU averages are estimated from available country data. The same indicator is calculated for upper secondary general education for comparative purposes.

Figure 19. **Average number of foreign languages learned in IVET**



Source: Eurostat, UOE data collection on education systems.

Key points

In the EU, the average number of foreign languages learned in upper secondary IVET was one in 2017. This was lower than in upper secondary general education where the EU average is 1.3 languages. A gap to be narrowed between IVET and general education is observed in most EU Member States. In Poland, Romania and Italy, the number of foreign languages learned was on par in IVET and general education. Portugal was the only EU Member State where IVET pupils learn, on average, more foreign languages than pupils in general education.

In 2017, the average number of foreign languages learned in upper secondary IVET was highest in Luxembourg (2.1) followed by Romania (2.0) and Finland (1.9). In contrast, eight Member States had an average number of foreign languages learned in upper secondary IVET programmes of less than one: Denmark, Spain, Germany, Estonia, Greece, Lithuania the Netherlands and Hungary.

On average, the number of foreign languages learned in upper secondary IVET did not change considerably in the EU between 2015 and 2017. Over the same period, stability was observed in 15 Member States. The largest fall in the average number of foreign languages was in Estonia, from 1.1 in 2015 to 0.5 in 2017.

The only non-EU countries for which we have information are Norway and Iceland. In both, the average number of foreign languages in IVET was 0.5 in 2017 which was lower than the EU average.

Table 19. **Average number of foreign languages learned in IVET, including comparison with a similar indicator for graduates from upper secondary general education**

Country code	Country	VET							General	
		2015		2017		Recent change			2017	
		Value	Flag	Value	Flag	Range	Country	EU-28	Value	Flag
EU-28	European Union (28)	1.0	(ce)	1.0	(ce)	'15-'17	0.0		1.3	(ce)
BE	Belgium	1.2		1.2		'15-'17	0.0	0.0	2.2	
BG	Bulgaria	1.4		1.5		'15-'17	0.1	0.0	1.8	
CZ	Czechia	1.3		1.3		'15-'17	0.0	0.0	2.0	
DK	Denmark	0.3	e	0.2		'15-'17	-0.1	0.0	1.4	
DE	Germany	0.4		0.4		'15-'17	0.0	0.0	1.5	
EE	Estonia	1.1		0.5		'15-'17	-0.6	0.0	2.2	
IE	Ireland					'15-'17			1.0	
EL	Greece	0.5		0.7		'15-'17	0.2	0.0	1.1	
ES	Spain	0.3		0.4		'15-'17	0.1	0.0	1.3	
FR	France	1.3		1.3	d	'15-'17	0.0	0.0	2.1	d
HR	Croatia	1.3		1.2		'15-'17	-0.1	0.0	1.9	
IT	Italy	1.4		1.4		'15-'17	0.0	0.0	1.4	
CY	Cyprus	1.2		1.1		'15-'17	-0.1	0.0	1.6	
LV	Latvia	1.3		1.3		'15-'17	0.0	0.0	1.9	
LT	Lithuania	0.9		0.8		'15-'17	-0.1	0.0	1.4	
LU	Luxembourg	2.1		2.1		'15-'17	0.0	0.0	3.0	
HU	Hungary	0.8		0.9		'15-'17	0.1	0.0	1.4	
MT	Malta	1.0		1.0		'15-'17	0.0	0.0	1.7	
NL	Netherlands	0.9		0.9		'15-'17	0.0	0.0	1.8	
AT	Austria	1.2		1.2		'15-'17	0.0	0.0	1.7	
PL	Poland	1.7		1.7		'15-'17	0.0	0.0	1.7	
PT	Portugal	1.0		1.0		'15-'17	0.0	0.0	0.7	
RO	Romania	2.0		2.0		'15-'17	0.0	0.0	2.0	
SI	Slovenia	1.3		1.3		'15-'17	0.0	0.0	2.0	
SK	Slovakia	1.5		1.4		'15-'17	-0.1	0.0	2.0	
FI	Finland	1.9		2.0		'15-'17	0.1	0.0	2.4	
SE	Sweden	1.1		1.1		'15-'17	0.0	0.0	1.9	
UK	United Kingdom					'15-'17			0.0	
IS	Iceland	0.6		0.5		'15-'17	-0.1	-0.01	1.7	
MK	North Macedonia					'15-'17			1.5	d
NO	Norway	0.5		0.5		'15-'17		-0.01	0.9	
CH	Switzerland					'15-'17				
TR	Turkey					'15-'17				

(e) Eurostat: 'estimated'.
(d) Eurostat: 'definition differs'.
(ce) Cedefop estimate based on available country data.
Source: Eurostat, UOE data collection on education systems.

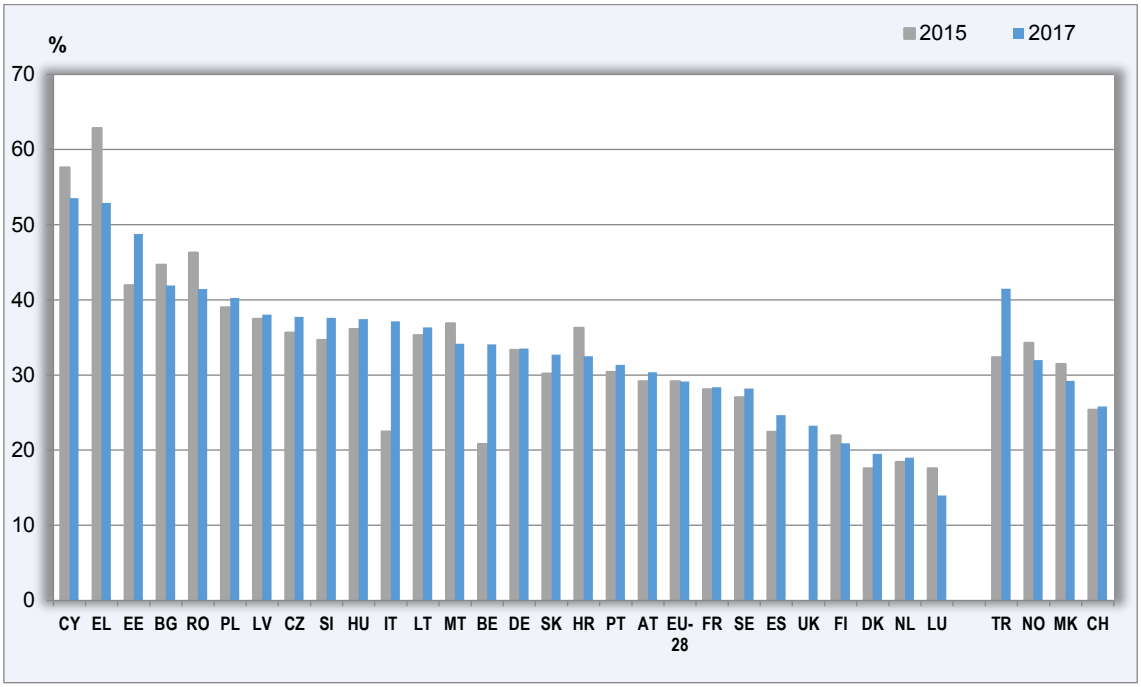
20. How many IVET students graduate in STEM subjects?

Indicator 2050: STEM graduates from upper secondary IVET

Skills in STEM subjects (science, technology, engineering, and mathematics) are of considerable importance for technological activities and progress across the EU. IVET contributes to STEM skill development.

The indicator below is defined as the number of graduates from upper secondary vocational education (ISCED 3) who successfully completed their studies in STEM subjects, expressed as a percentage of all graduates from upper secondary vocational education. EU averages are estimated from available country data.

Figure 20. **STEM graduates from upper secondary IVET (% of total)**



Source: Cedefop calculations based on Eurostat data/UOE data collection on education systems.

Key points

It can be estimated that, on average, 29.1% of graduates from upper secondary VET obtained a qualification in STEM subjects in the EU in 2017. The highest share was found in Cyprus (53.6%) and Greece (52.9%). Luxembourg, the Netherlands and Denmark had the lowest shares (below 20%).

In the EU, the percentage of graduates from upper secondary VET obtaining a qualification in STEM subjects remained fairly stable between 2015 and 2017. Some considerable changes were observed at national level. The largest fall was in Greece

(by -9.9 percentage points). The highest increase was reported in Italy (+14.7 percentage points) and Belgium (+13.2 percentage points).

Among the non-EU countries for which data are available, Turkey had the highest percentage of upper secondary VET graduates in STEM subjects in 2017 at 41.5%. In North Macedonia, Norway and Switzerland, the percentage ranged between 25.8% and 32%.

Table 20. **STEM graduates from upper secondary IVET (% of total)**

Country code	Country	2015		2017		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	29.2	(ce)	29.1	(ce)	'15-'17	0.0	
BE	Belgium	20.8		34.1		'15-'17	13.2	0.0
BG	Bulgaria	44.7		41.9		'15-'17	-2.8	0.0
CZ	Czechia	35.7		37.7		'15-'17	2.1	0.0
DK	Denmark	17.6		19.5		'15-'17	1.9	0.0
DE	Germany	33.4		33.5		'15-'17	0.1	0.0
EE	Estonia	42.0		48.8		'15-'17	6.8	0.0
IE	Ireland		z		z	'15-'17		
EL	Greece	62.8		52.9		'15-'17	-9.9	0.0
ES	Spain	22.4		24.7		'15-'17	2.2	0.0
FR	France	28.1		28.4		'15-'17	0.3	0.0
HR	Croatia	36.3		32.5		'15-'17	-3.8	0.0
IT	Italy	22.5		37.1	d	'15-'17	14.7	0.0
CY	Cyprus	57.6		53.6		'15-'17	-4.1	0.0
LV	Latvia	37.5		38.0		'15-'17	0.6	0.0
LT	Lithuania	35.3		36.3		'15-'17	1.0	0.0
LU	Luxembourg	17.6		14.0		'15-'17	-3.6	0.0
HU	Hungary	36.1		37.5		'15-'17	1.3	0.0
MT	Malta	36.9		34.2		'15-'17	-2.7	0.0
NL	Netherlands	18.5		19.0		'15-'17	0.6	0.0
AT	Austria	29.2		30.4		'15-'17	1.2	0.0
PL	Poland	39.0	e	40.3	d	'15-'17	1.3	0.0
PT	Portugal	30.4		31.3		'15-'17	0.9	0.0
RO	Romania	46.3		41.5		'15-'17	-4.8	0.0
SI	Slovenia	34.7		37.6		'15-'17	3.0	0.0
SK	Slovakia	30.2		32.7		'15-'17	2.5	0.0
FI	Finland	22.0		20.9		'15-'17	-1.1	0.0
SE	Sweden	27.1		28.2		'15-'17	1.2	0.0
UK	United Kingdom			23.3		'15-'17		
IS	Iceland	32.2				'15-'17		
MK	North Macedonia	31.5		29.2		'15-'17	-2.3	0.0
NO	Norway	34.3		32.0		'15-'17	-2.3	0.0
CH	Switzerland	25.4		25.8		'15-'17	0.4	0.0
TR	Turkey	32.4		41.5		'15-'17	9.1	0.0

(z) Eurostat: 'not applicable'.
(e) Eurostat: 'estimated'.
(d) Eurostat: 'definition differs'.
(ce) Cedefop estimate based on available country data.
Source: Cedefop calculations based on Eurostat data/UOE data collection on education systems.

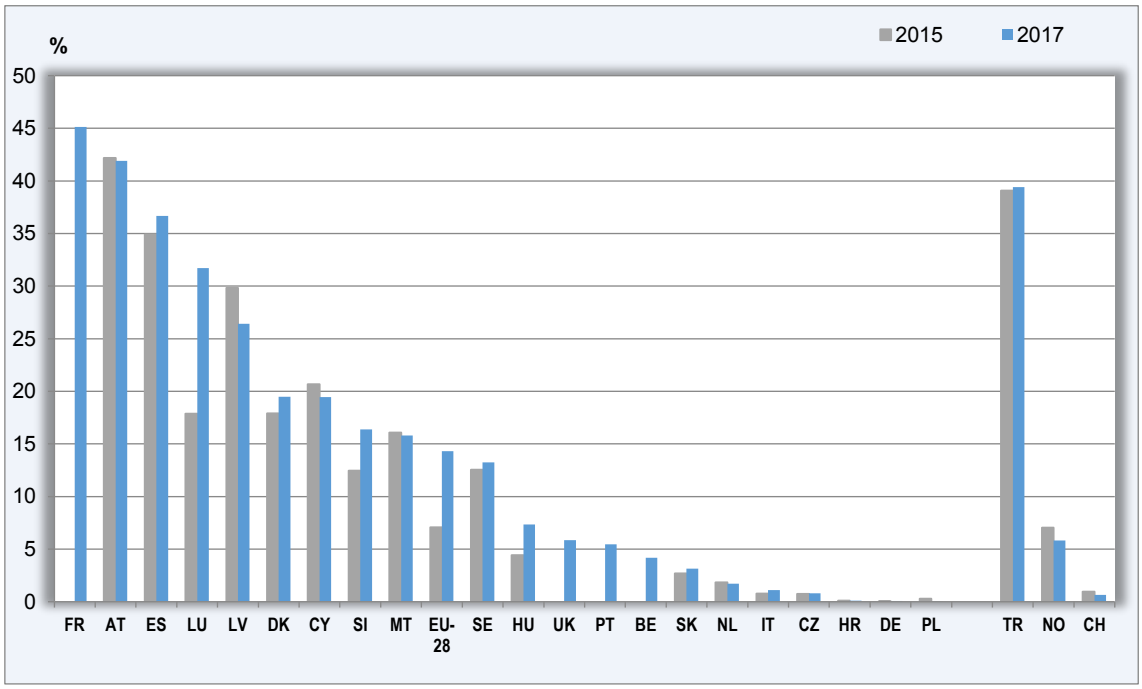
21. How many young people obtain a VET qualification at tertiary level?

Indicator 2065: short-cycle VET graduates as a percentage of first-time tertiary education graduates

A key EU policy aim is to have a highly skilled and qualified population and labour force. Increasing the EU average share of 30 to 34 year-olds with education attainment at tertiary level, and maximising the contribution of vocational education to this end, are key policy objectives.

The indicator below is defined as the number of short-cycle VET graduates ([31]) in a given year, expressed as a percentage of all first-time tertiary education graduates ([32]) in that year. This is assumed as a proxy measure for the contribution of VET to tertiary level education attainment among the young ([33]). EU averages are estimated from available country data.

Figure 21. **Short-cycle VET graduates as % of first-time tertiary level graduates**



Source: Cedefop calculations based on Eurostat data/UOE data collection on education systems.

([31]) Graduates from ISCED 554 programmes.

([32]) Graduates from programmes assigned to ISCED 544, 554; 645, 655, 665; 646, 656, 666; 746, 756 or 766.

([33]) The concept of 'tertiary level VET' is not clearly defined at present. The limitation to short-cycle VET (ISCED 554) may be too restrictive.

Key points

In 2017, in the EU, 14.3% of first-time tertiary education graduates were short-cycle VET graduates. There was substantial variation in this percentage across the EU, ranging from 45.1% (France) and 41.9% (Austria) to almost zero in Poland, Germany and Croatia, where tertiary VET may be placed at levels different from ISCED 5. Shares lower than 5% were also observed in Czechia (0.8%), Italy (1.1%), the Netherlands (1.7%), Slovakia (3.2%) and Belgium (4.2%),

During 2015-17, in most EU Member States for which data were available and could be safely compared, the percentage increased or remained stable. The greatest increase was estimated for Luxemburg (+13.8 percentage points). Small falls were reported in Latvia (-3.4 percentage points), Cyprus (-1.2 percentage points), Poland (-0.3 percentage points), Austria (-0.2 percentage points) and the Netherlands (-0.1 percentage points).

There were also large differences between the three non-EU countries for which data were available: the percentage of short-cycle VET graduates among first-time tertiary education graduates varied from 39.4% in Turkey to 0.7% in Switzerland.

Table 21. **Short-cycle VET graduates as % of first-time tertiary level graduates**

Country code	Country	2015		2017		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)			14.3	(ce) (b)	'15-'17		
BE	Belgium		d	4.2		'15-'17		
BG	Bulgaria		z		z	'15-'17		
CZ	Czechia	0.7		0.8		'15-'17	0.1	
DK	Denmark	17.9		19.5		'15-'17	1.6	
DE	Germany	0.1		0.1		'15-'17	0.0	
EE	Estonia		z		z	'15-'17		
IE	Ireland		d			'15-'17		
EL	Greece		z		z	'15-'17		
ES	Spain	34.9		36.7		'15-'17	1.8	
FR	France			45.1		'15-'17		
HR	Croatia	0.1		0.1		'15-'17	0.0	
IT	Italy	0.8		1.1		'15-'17	0.3	
CY	Cyprus	20.7		19.5		'15-'17	-1.2	
LV	Latvia	29.8		26.4		'15-'17	-3.4	
LT	Lithuania		z		z	'15-'17		
LU	Luxembourg	17.9		31.7		'15-'17	13.8	
HU	Hungary	4.4		7.3		'15-'17	2.9	
MT	Malta	16.1		15.8		'15-'17	-0.3	
NL	Netherlands	1.8		1.7		'15-'17	-0.1	
AT	Austria	42.2		41.9		'15-'17	-0.2	
PL	Poland	0.3		0.0		'15-'17	-0.3	
PT	Portugal			5.5		'15-'17		
RO	Romania		z		z	'15-'17		
SI	Slovenia	12.5		16.4		'15-'17	3.9	
SK	Slovakia	2.7		3.2		'15-'17	0.5	
FI	Finland		z		z	'15-'17		
SE	Sweden	12.6		13.3		'15-'17	0.7	
UK	United Kingdom			5.9	d	'15-'17		
IS	Iceland	2.8				'15-'17		
MK	North Macedonia		z		z	'15-'17		
NO	Norway	7.0		5.8		'15-'17	-1.2	
CH	Switzerland	0.9		0.7		'15-'17	-0.3	
TR	Turkey	39.1		39.4		'15-'17	0.3	

(z) Eurostat: 'not applicable'.
(d) Eurostat: 'definition differs'.
(b) Break in time series.
(ce) Cedefop estimate based on available country data.
Source: Cedefop calculations based on Eurostat data/UOE data collection on education systems.

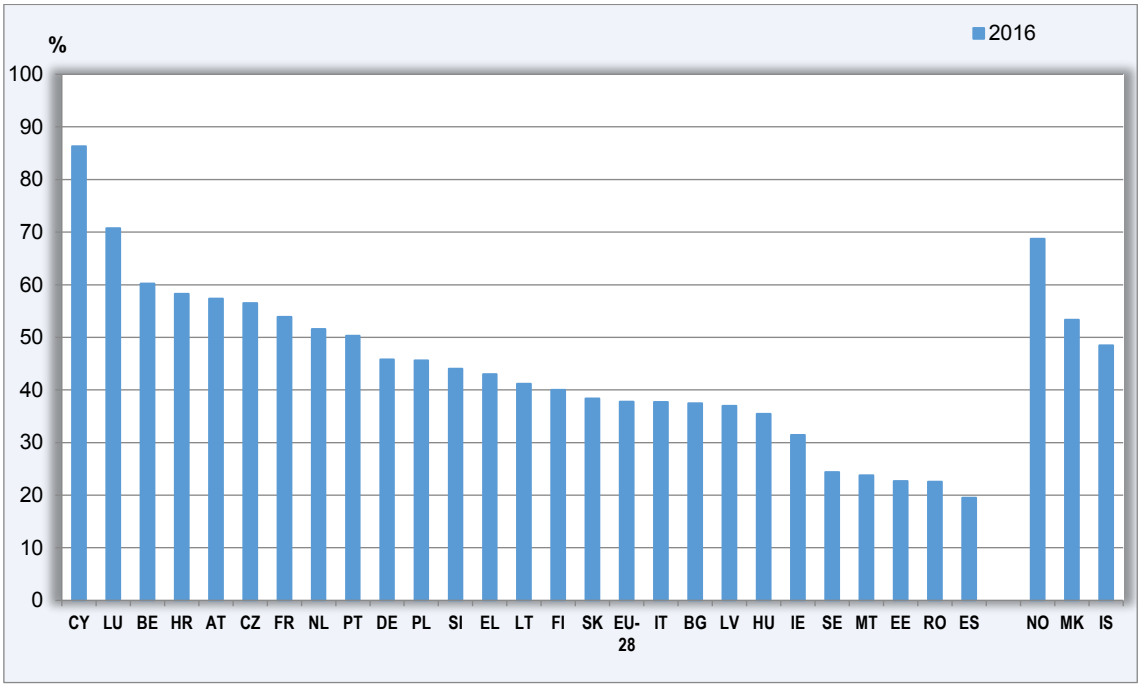
22. How many enterprises use training to support technological innovation?

Indicator 2070: innovative enterprises with supportive training practices

The Europe 2020 strategy targets smart growth, which also relies on knowledge and innovation in enterprises. VET is essential to promote and support this.

The indicator below is defined as the number of enterprises which have engaged in technological innovation and which have provided training to their staff to support such innovation. This number is expressed as a percentage of all companies engaged in technological innovation. The data refer only to enterprises in core innovation sectors. The EU averages are estimated using available country data.

Figure 22. **Innovative enterprises with supportive training practices (%)**



Source: Eurostat, community innovation survey.

Key points

Based on 2016 data, on average 37.7% of EU enterprises engaged in technological innovation provided supportive training. In nine Member States this share was higher than 50%. Figures were highest in Cyprus (86.3%) and lowest in Spain, Romania, Estonia, Malta and Sweden (less than 25%).

Among the non-EU countries for which data are available, innovative enterprises provided more supportive training than the EU on average in Norway (68.7%), North Macedonia (53.3%) and Iceland (48.5%).

Table 22. **Innovative enterprises with supportive training practices (%)**

Country code	Country	2016	
		Value	Flag
EU-28	European Union (28)	37.7	
BE	Belgium	60.2	
BG	Bulgaria	37.4	
CZ	Czechia	56.5	
DK	Denmark		z
DE	Germany	45.8	
EE	Estonia	22.7	
IE	Ireland	31.4	
EL	Greece	43.0	
ES	Spain	19.5	d
FR	France	53.9	
HR	Croatia	58.3	
IT	Italy	37.7	
CY	Cyprus	86.3	
LV	Latvia	37.0	
LT	Lithuania	41.2	
LU	Luxembourg	70.8	
HU	Hungary	35.4	
MT	Malta	23.8	
NL	Netherlands	51.6	
AT	Austria	57.4	
PL	Poland	45.6	
PT	Portugal	50.3	
RO	Romania	22.6	
SI	Slovenia	44.0	
SK	Slovakia	38.4	
FI	Finland	40.0	
SE	Sweden	24.3	
UK	United Kingdom		
IS	Iceland	48.5	
MK	North Macedonia	53.3	
NO	Norway	68.7	
CH	Switzerland		
TR	Turkey		

NB: The community innovation surveys are carried out with two years' frequency (latest available: 2016).

(z) Eurostat: 'not applicable'.

(d) Eurostat: 'definition differs'.

Source: Eurostat, community innovation survey.

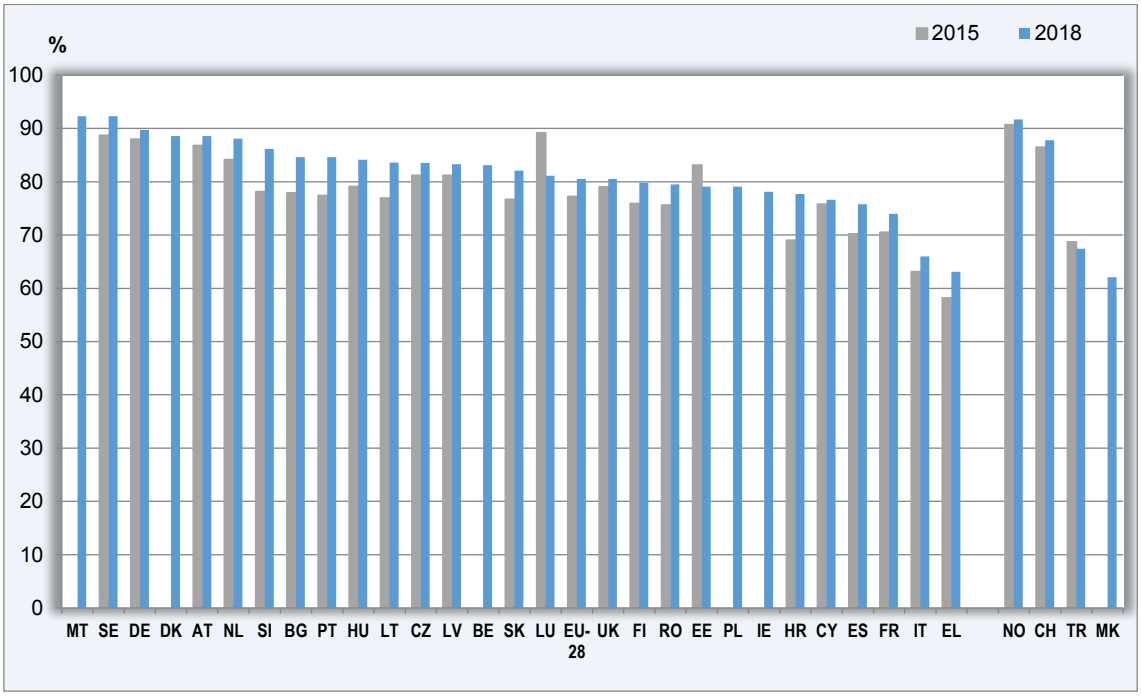
23. How many young IVET graduates are in employment?

Indicator 2080: employment rate for 20 to 34 year-old IVET graduates

Positive returns from IVET are of crucial importance. Being mainly, but not solely, designed for participants to acquire practical skills and know-how needed for employment in particular occupations, IVET can facilitate the transition from education to work and contribute to lowering youth unemployment.

The indicator below is defined as the employment rate of young people aged 20 to 34 who have a vocational qualification at ISCED 3-4 as their highest level of education attainment and who are no longer in education and training. The indicator is considered first on its own: in the following sections it is compared with the corresponding rates for medium-level graduates from general education and for those with, at most, lower secondary level education.

Figure 23. **Employment rate for IVET graduates (20 to 34 year-olds)**



Source: Eurostat, EU labour force survey.

Key points

In 2018, in the EU, the average employment rate for IVET graduates with a medium level of education (ISCED 3-4), and no longer in (formal or non-formal) education, was 80.5%. The highest rates were observed in Malta (92.3%) and Sweden (92.3%). The lowest employment rates for 20 to 34 year-old IVET graduates were found in Italy (66%) and Greece (63.1%).

Between 2015 and 2018, in the EU as a whole, the indicator increased by 3.3 percentage points. There were increases in almost all EU Member States, although to different extents: the largest was in Croatia (+8.7 percentage points) and Slovenia (+8.1 percentage points).

Break in time series occurred in Belgium, Denmark, Ireland, Malta and Poland, so their data for 2018 cannot be reliably compared with those for 2015. Data for Luxembourg may be subject to revision.

Among the non-EU countries for which there are data, Norway and Switzerland had rates of respectively 91.7% and 87.8% in 2018. These were higher than the EU average. The employment rate in Turkey and North Macedonia were, in contrast, much lower than the EU average (resp. 62.1% and 67.4%).

In the EU, in 2018, the employment rate for graduates from the VET stream was higher than that for graduates from the general stream (73.9%) and for those with low education attainment (57.2%) These differences are explored in the following indicators.

Table 23. **Employment rate for IVET graduates (20 to 34 year-olds), including comparison with a similar indicator for graduates from upper secondary general education and for young people with a low level of educational attainment**

Country code	Country	VET							General		Low	
		2015		2018		Recent change			2018		2018	
		Value	Flag	Value	Flag	Range	Country	EU-28	Value	Flag	Value	Flag
EU-28	European Union (28)	77.2		80.5		'15-'18	3.3		73.9		57.2	
BE	Belgium			83.1	b	'15-'18			72.8		54.8	
BG	Bulgaria	77.9		84.6		'15-'18	6.7	3.3	76.8		42.0	
CZ	Czechia	81.2		83.5		'15-'18	2.3	3.3	82.4		56.7	
DK	Denmark			88.6	b	'15-'18			79.1		61.6	
DE	Germany	88.0		89.7		'15-'18	1.7	3.3	67.4		56.3	
EE	Estonia	83.1		79.1		'15-'18	-4.0	3.3	80.2		74.0	
IE	Ireland			78.1	b	'15-'18			75.0		47.0	
EL	Greece	58.2		63.1		'15-'18	4.9	3.3	63.9		53.0	
ES	Spain	70.2		75.8		'15-'18	5.6	3.3	69.6		61.7	
FR	France	70.5		74.0		'15-'18	3.5	3.3	68.3		45.4	
HR	Croatia	69.0		77.7		'15-'18	8.7	3.3	63.5		43.0	
IT	Italy	63.1		66.0		'15-'18	2.9	3.3	55.5		49.1	
CY	Cyprus	75.8		76.6		'15-'18	0.8	3.3	78.5		68.5	
LV	Latvia	81.2		83.3		'15-'18	2.1	3.3	73.6		59.8	
LT	Lithuania	76.9		83.6		'15-'18	6.7	3.3	74.6		50.0	
LU	Luxembourg	89.2		81.1		'15-'18	-8.1	3.3	84.3		64.2	
HU	Hungary	79.1		84.1		'15-'18	5.0	3.3	80.2		53.8	
MT	Malta			92.3	b	'15-'18			88.9		75.7	
NL	Netherlands	84.1		88.1		'15-'18	4.0	3.3	84.2		67.7	
AT	Austria	86.8		88.6		'15-'18	1.8	3.3	79.9		60.1	
PL	Poland			79.1	b	'15-'18			75.4		49.9	
PT	Portugal	77.4		84.6		'15-'18	7.2	3.3	84.5		80.5	
RO	Romania	75.6		79.5		'15-'18	3.9	3.3	74.0		60.5	
SI	Slovenia	78.1		86.2		'15-'18	8.1	3.3	78.1		63.0	
SK	Slovakia	76.7		82.1		'15-'18	5.4	3.3	78.3		34.3	
FI	Finland	75.9		79.8		'15-'18	3.9	3.3	74.3		49.3	
SE	Sweden	88.7		92.3		'15-'18	3.6	3.3	83.6		65.5	
UK	United Kingdom	79.0		80.5		'15-'18	1.5	3.3	82.9		65.7	
IS	Iceland	92.4				'15-'18			89.2		82.3	
MK	North Macedonia			62.1		'15-'18			48.7		33.1	
NO	Norway	90.7		91.7		'15-'18	1.0	3.3	76.9		66.5	
CH	Switzerland	86.5		87.8		'15-'18	1.3	3.3	76.9		69.3	
TR	Turkey	68.7		67.4		'15-'18	-1.3	3.3	58.0		56.0	

(b) Eurostat: 'break in time series'.

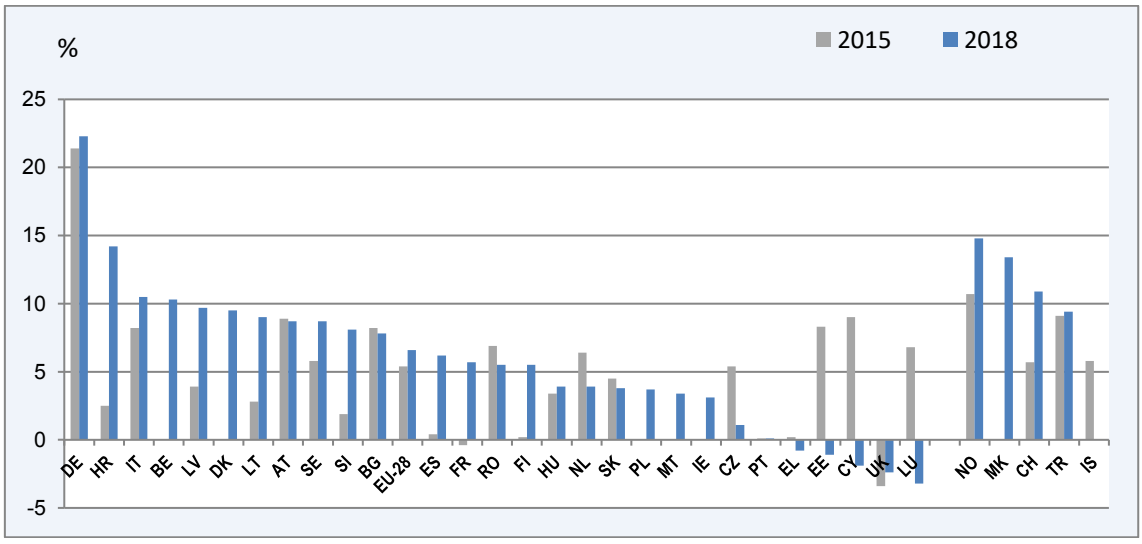
Source: Eurostat, EU labour force survey.

24. Are young IVET graduates more likely to be in employment than those from the general stream?

Indicator 2090: employment premium for IVET graduates (over general stream)

To contextualise the labour market outcomes of IVET graduates, the following indicator compares their employment rate with that of graduates from the general stream of education. The indicator is defined as the difference between the employment rates of IVET graduates at a medium level of education attainment (ISCED 3-4) and the rate for those who graduated, at the same ISCED levels, from the general education stream. The rate for IVET graduates is defined as in the previous section: the employment rate of 20 to 34 year-olds with a vocational qualification at ISCED 3-4 as their highest educational level and no longer in formal or non-formal education and training. The difference is obtained by subtracting the employment rate of general stream graduates from the employment rate of IVET graduates. Both employment rates exclude graduates in further formal or non-formal education and training and refer to 20 to 34 year-olds. The difference is expressed in percentage points.

Figure 24. **Employment premium for IVET graduates (over general stream)**



Source: Cedefop calculations based on Eurostat, EU labour force survey.

Key points

In 2018, the employment rate for EU IVET graduates with a medium level of education attainment (ISCED 3-4) was 6.6 percentage points higher than for those who

graduated from the general stream of education at the same levels. IVET graduates enjoyed a positive employment premium (a higher employment rate) in most EU countries. Only in, Estonia (-1.1 percentage points), Cyprus (-1.9 percentage points), the UK (-2.4 percentage points) and Luxembourg (-3.2 percentage points), was the employment rate for general education graduates higher than for graduates from IVET. During 2015-18, in the EU, the employment premium for IVET graduates over those from the general stream of education increased, on average, by 1.2 percentage points. Over the same period, at country level, mixed patterns of change were found. Break in time series occurred in Belgium, Denmark, Ireland, Malta, and Poland, so their data for 2018 cannot be reliably compared with those for 2015. Data for Luxembourg may be subject to revision.

Among the non-EU countries for which data were available, the employment premia ranged between 9.4% and 14.8% (all higher than the EU average).

Table 24. **Employment premium for IVET graduates (over general stream)**

Country code	Country	2015		2018		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	5.4		6.6		'15-'18	1.2	
BE	Belgium			10.3	b	'15-'18		
BG	Bulgaria	8.2		7.8		15-'18	-0.4	1.2
CZ	Czechia	5.4		1.1		'15-'18	-4.3	1.2
DK	Denmark			9.5	b	'15-'18		
DE	Germany	21.4		22.3		15-'18	0.9	1.2
EE	Estonia	8.3		-1.1		'15-'18	-9.4	1.2
IE	Ireland			3.1	b	'15-'18		
EL	Greece	0.2		-0.8		15-'18	-1.0	1.2
ES	Spain	0.4		6.2		'15-'18	5.8	1.2
FR	France	-0.4		5.7		'15-'18	6.1	1.2
HR	Croatia	2.5		14.2		'15-'18	11.7	1.2
IT	Italy	8.2		10.5		'15-'18	2.3	1.2
CY	Cyprus	9.0		-1.9		'15-'18	-10.9	1.2
LV	Latvia	3.9		9.7		'15-'18	5.8	1.2
LT	Lithuania	2.8		9.0		'15-'18	6.2	1.2
LU	Luxembourg	6.8		-3.2		'15-'18	-10.0	1.2
HU	Hungary	3.4		3.9		'15-'18	0.5	1.2
MT	Malta			3.4	b	'15-'18		
NL	Netherlands	6.4		3.9		15-'18	-2.5	1.2
AT	Austria	8.9		8.7		'15-'18	-0.2	1.2
PL	Poland			3.7	b	'15-'18		
PT	Portugal	0.1		0.1		15-'18	0.0	1.2
RO	Romania	6.9		5.5		'15-'18	-1.4	1.2
SI	Slovenia	1.9		8.1		'15-'18	6.2	1.2
SK	Slovakia	4.5		3.8		'15-'18	-0.7	1.2
FI	Finland	0.2		5.5		'15-'18	5.3	1.2
SE	Sweden	5.8		8.7		'15-'18	2.9	1.2
UK	United Kingdom	-3.4		-2.4		'15-'18	1.0	1.2
IS	Iceland	5.8				'15-'18		1.2
MK	North Macedonia			13.4		'15-'18		1.2
NO	Norway	10.7		14.8		'15-'18	4.1	1.2
CH	Switzerland	5.7		10.9		'15-'18	5.2	1.2
TR	Turkey	9.1		9.4		'15-'18	0.3	1.2

(b) Eurostat: 'break in time series'.

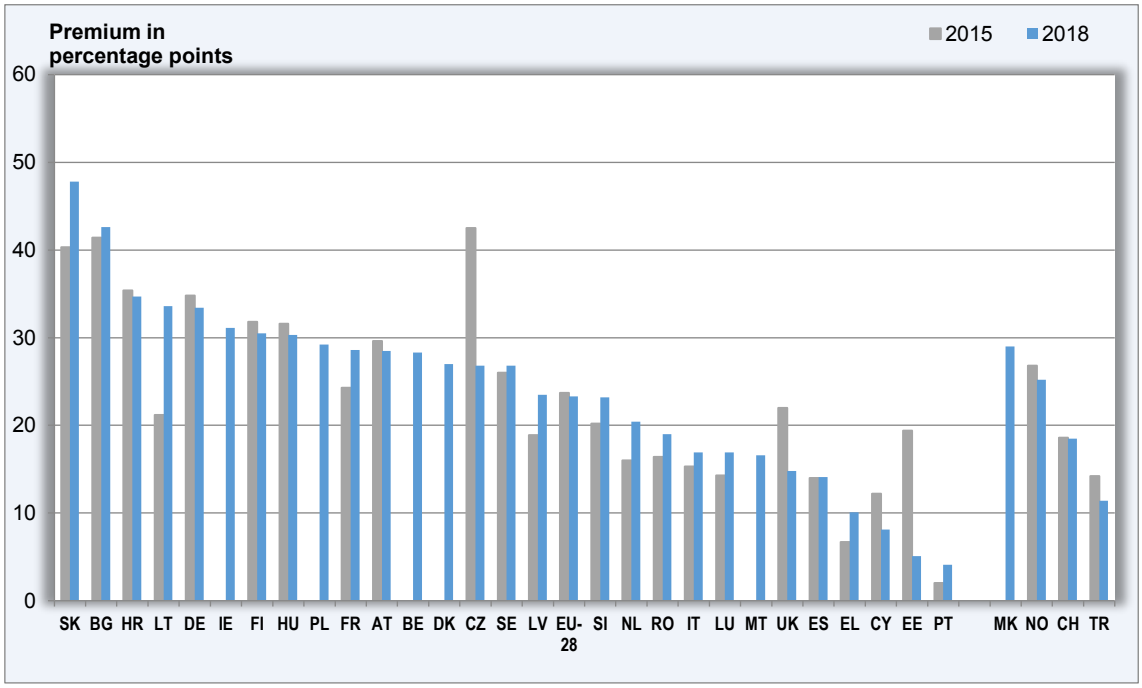
Source: Cedefop calculations based on Eurostat, EU labour force survey.

25. Are young IVET graduates more likely to be in employment than those with lower level qualifications?

Indicator 2100: employment premium for IVET graduates (over low-educated)

To consider the benefit of IVET further, this indicator compares the employment rates of IVET graduates (with a vocational qualification at ISCED 3-4 as their highest level of education attainment) with the employment rate of those with, at most, lower secondary qualifications (ISCED 0-2). Both employment rates exclude individuals in further formal or non-formal education and training and refer to 20 to 34 year-olds. The indicator expresses the difference in percentage points between the two employment rates.

Figure 25. **Employment premium for IVET graduates (over low-educated)**



Source: Cedefop calculations based on Eurostat, EU labour force survey.

Key points

In 2018, those aged 20 to 34 years in the EU holding a medium-level VET qualification had an employment rate 23.3 percentage points higher than those with, at most, a lower secondary level qualification. Compared to the latter, VET graduates enjoyed a substantial employment premium: in almost all countries, this was 10 percentage points or more. Only in Portugal, Estonia and Cyprus was the employment premium

lower than 10 percentage points, but still positive. Slovakia and Bulgaria recorded the highest premiums of 40 percentage points and more.

The employment premium decreased on average by 0.4 percentage points in the EU between 2015 and 2018. The fall in the employment premium between 2015 and 2018 was the strongest in Czechia (-15.7 percentage points) and Estonia (-14.3 percentage points). In Lithuania, in contrast, the difference in employment rates grew by 12.4 percentage points. Break in time series occurred in Belgium, Denmark, Ireland, Malta and Poland, so their data for 2018 cannot be reliably compared with those for 2015. Data for Luxembourg may be subject to revision.

In non-EU countries the employment premia ranged between 11.4% (Turkey) and 29% (North Macedonia). The employment premium was lower than the EU average in Switzerland and Turkey. In Norway and North Macedonia, the premium was slightly higher than the average in the EU.

Table 25. **Employment premium for IVET graduates (over low-educated)**

Country code	Country	2015		2018		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	23.7		23.3		'15-'18	-0.4	
BE	Belgium			28.3	b	'15-'18		
BG	Bulgaria	41.4		42.6		'15-'18	1.2	-0.4
CZ	Czechia	42.5		26.8		'15-'18	-15.7	-0.4
DK	Denmark			27.0	b	'15-'18		-0.4
DE	Germany	34.8		33.4		'15-'18	-1.4	-0.4
EE	Estonia	19.4		5.1		'15-'18	-14.3	-0.4
IE	Ireland			31.1	b	'15-'18		
EL	Greece	6.7		10.1		'15-'18	3.4	-0.4
ES	Spain	14.0		14.1		'15-'18	0.1	-0.4
FR	France	24.3		28.6		'15-'18	4.3	-0.4
HR	Croatia	35.4		34.7		'15-'18	-0.7	-0.4
IT	Italy	15.3		16.9		'15-'18	1.6	-0.4
CY	Cyprus	12.2		8.1		'15-'18	-4.1	-0.4
LV	Latvia	18.9		23.5		'15-'18	4.6	-0.4
LT	Lithuania	21.2		33.6		'15-'18	12.4	-0.4
LU	Luxembourg	14.3		16.9		'15-'18	2.6	-0.4
HU	Hungary	31.6		30.3		'15-'18	-1.3	-0.4
MT	Malta			16.6	b	'15-'18		
NL	Netherlands	16.0		20.4		'15-'18	4.4	-0.4
AT	Austria	29.6		28.5		'15-'18	-1.1	-0.4
PL	Poland			29.2	b	'15-'18		
PT	Portugal	2.0		4.1		'15-'18	2.1	-0.4
RO	Romania	16.4		19.0		'15-'18	2.6	-0.4
SI	Slovenia	20.2		23.2		'15-'18	3.0	-0.4
SK	Slovakia	40.3		47.8		'15-'18	7.5	-0.4
FI	Finland	31.8		30.5		'15-'18	-1.3	-0.4
SE	Sweden	26.0		26.8		'15-'18	0.8	-0.4
UK	United Kingdom	22.0		14.8		'15-'18	-7.2	-0.4
IS	Iceland	9.5				'15-'18		
MK	North Macedonia			29.0		'15-'18		
NO	Norway	26.8		25.2		'15-'18	-1.6	-0.4
CH	Switzerland	18.6		18.5		'15-'18	-0.1	-0.4
TR	Turkey	14.2		11.4		'15-'18	-2.8	-0.4

(b) Eurostat: 'break in time series'.

Source: Cedefop calculations based on Eurostat, EU labour force survey.

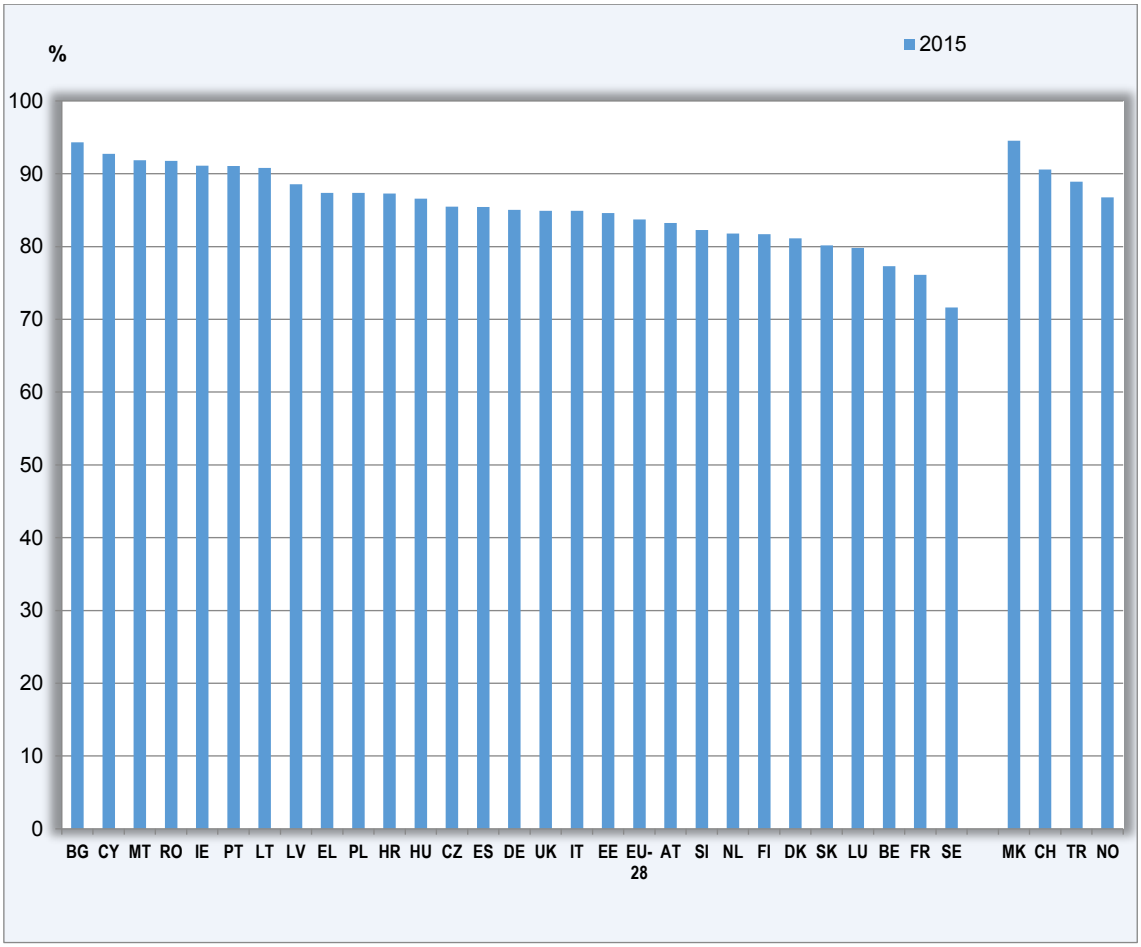
26. Does training help people do their jobs better?

Indicator 2110: workers helped to improve their work by training

A key aim of EU policy is for governments, individuals, and employers to invest in skill development to strengthen social inclusion, and improve economic growth and competitiveness. VET contributes to improving skills at the workplace and career perspectives.

The indicator below is defined as the number of trained workers reporting that 'training has helped them to improve the way they work', expressed as a percentage of all trained workers. Training refers to training provided by their employer or by themselves in the case of the self-employed.

Figure 26. **Workers helped to improve their work by training (%)**



Source: Eurofound, European working conditions survey.

Key points

Based on 2015 data, on average 83.7% trained workers in the EU claimed that their training helped them improve their way of working. In most countries, values were above 80%; only Sweden, France, Belgium and Luxembourg reported percentages lower, with the lowest share observed in Sweden (71.6%). Percentages in Bulgaria, Cyprus, Malta, Romania, Ireland, Portugal and Romania were above 90%.

In the non-EU countries for which data were available, percentages were all above the EU average. In Switzerland (90.6%), Turkey (88.9%) and Norway (86.8%) most workers who undertook training provided by their employer, claimed that this training helped them improve their way of working.

Country variations may be related to differences in the aim of the training: for example, some training may be directly aimed at improving the performance of the worker, while other training may have a wider aim.

Table 26. **Workers helped to improve their work by training (%)**

Country code	Country	2015	
		Value	Flag
EU-28	European Union (28)	83.7	
BE	Belgium	77.3	
BG	Bulgaria	94.3	u
CZ	Czechia	85.5	
DK	Denmark	81.1	
DE	Germany	85.1	
EE	Estonia	84.6	
IE	Ireland	91.1	
EL	Greece	87.4	u
ES	Spain	85.4	
FR	France	76.1	
HR	Croatia	87.3	
IT	Italy	84.9	
CY	Cyprus	92.7	
LV	Latvia	88.5	
LT	Lithuania	90.8	
LU	Luxembourg	79.8	
HU	Hungary	86.6	
MT	Malta	91.9	
NL	Netherlands	81.8	
AT	Austria	83.2	
PL	Poland	87.3	
PT	Portugal	91.1	
RO	Romania	91.8	
SI	Slovenia	82.2	
SK	Slovakia	80.2	
FI	Finland	81.7	
SE	Sweden	71.6	
UK	United Kingdom	84.9	
IS	Iceland		
MK	North Macedonia	94.5	u
NO	Norway	86.8	
CH	Switzerland	90.6	
TR	Turkey	88.9	

NB: The European working conditions surveys are carried out with five years' frequency (latest available: 2015). Thus, no baseline or trends information in the table.

(u) Low reliability.

Source: Eurofound, European working conditions survey.

Part III

Overall transition and employment trends

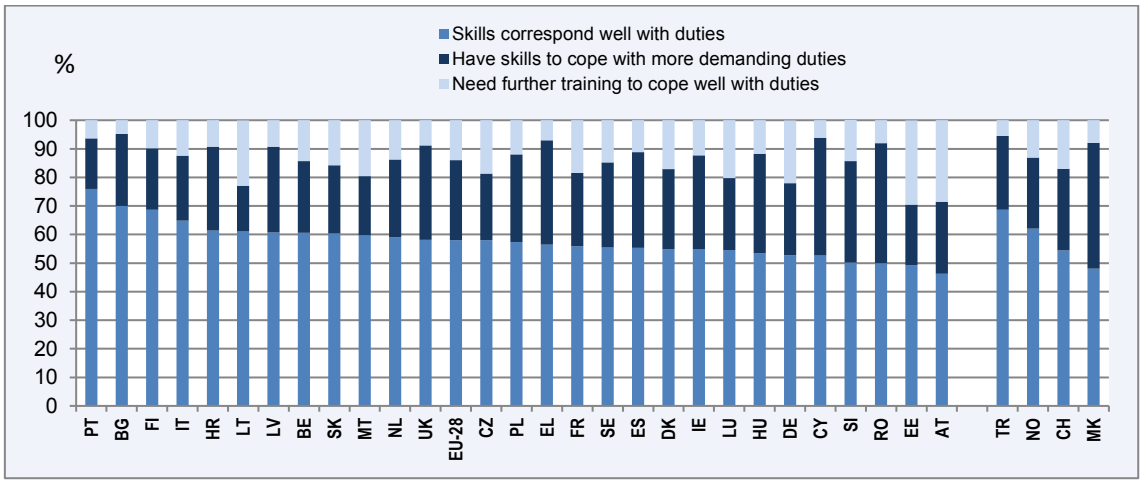
27. To what extent do workers have skills matched to their jobs?

Indicator 2120: workers with skills matched to their duties

Of central importance to EU policy is to develop and upgrade skills matched to labour demand and to anticipate future skill needs. Education and training should provide people with the skills required in both their current job and in any future one, but mismatches can occur. There are various ways to measure the extent of skills mismatch in the labour market.

The indicator used here is defined as the percentage of people who report that their skills correspond well with the duties in their job. Respondents to the European working conditions survey were asked: 'which of the following alternatives would best describe your skills in your own work?': 'my present skills correspond well with my duties'; 'I need further training to cope well with my duties'; and 'I have the skills to cope with more demanding duties'. The share of those stating 'my present skills correspond well with my duties' can be used as a proxy measure of workers with skills matched to the demands of their jobs.

Figure 27. **Workers with skills matched to their duties (%) (2015)**



Source: Eurofound, European working conditions survey.

Key points

In 2015, 57% of workers in the EU reported that their skills were matched to the jobs they performed. An additional 14% felt they needed further training to cope well with their duties (which could be interpreted as a proxy measure of underskilling). The remaining 28% considered that they had skills to cope with more demanding duties.

Portugal had the highest percentage of workers who regard their skills as matched to their job (75.9%), followed by Bulgaria (70%) and Finland (68.7%). Austria (46.2%) recorded the lowest percentage. In Estonia and Austria, over 28% of workers indicated

they need additional training. In Greece and Cyprus workers rarely reported that they need further training, but more than 40% indicated that they have skills to cope with more demanding duties. As a result, the percentage of workers with skills matched to their duties was relatively low in these countries.

In non-EU countries, the share of respondents having adequate skills varied between 48.1% (North Macedonia) and 68.7% (Turkey). In Switzerland, three times as many respondents as in Turkey reported being in need of further training.

Table 27. **Workers with skills matched to their duties (%), including comparison with complementary indicators (workers with skills to cope with more demanding duties and workers needing further training)**

Country code	Country	Skills correspond well with duties		Have skills to cope with more demanding duties		Need further training	
		2015		2015		2015	
		Value	Flag	Value	Flag	Value	Flag
EU-28	European Union (28)	58.0		28.0		14.0	
BE	Belgium	60.6		25.1		14.3	
BG	Bulgaria	70.0		25.2		4.8	
CZ	Czechia	58.0		23.3		18.7	
DK	Denmark	54.9		28.0		17.1	
DE	Germany	52.8		25.2		21.9	
EE	Estonia	49.3		21.1		29.5	
IE	Ireland	54.8		32.9		12.3	
EL	Greece	56.4		36.6		7.0	
ES	Spain	55.3		33.5		11.2	
FR	France	55.9		25.6		18.5	
HR	Croatia	61.4		29.3		9.3	
IT	Italy	64.9		22.7		12.4	
CY	Cyprus	52.6		41.3		6.1	
LV	Latvia	60.7		30.0		9.3	
LT	Lithuania	61.0		16.1		22.8	
LU	Luxembourg	54.5		25.2		20.3	
HU	Hungary	53.4		34.9		11.7	
MT	Malta	59.7		20.7		19.6	
NL	Netherlands	59.0		27.2		13.8	
AT	Austria	46.2		25.3		28.5	
PL	Poland	57.3		30.7		12.0	
PT	Portugal	75.9		17.8		6.3	
RO	Romania	49.9		42.1		8.0	
SI	Slovenia	50.2		35.5		14.4	
SK	Slovakia	60.4		23.8		15.8	
FI	Finland	68.7		21.5		9.8	
SE	Sweden	55.4		29.9		14.7	
UK	United Kingdom	58.1		33.1		8.8	
IS	Iceland						
MK	North Macedonia	48.1		44.0		7.9	
NO	Norway	62.0		24.9		13.1	
CH	Switzerland	54.4		28.6		17.0	
TR	Turkey	68.7		25.8		5.5	

NB: The European working conditions surveys are carried out at five-year frequency (latest available: 2015), hence no baseline or trends information in the table.

Source: Eurofound, European working conditions survey.

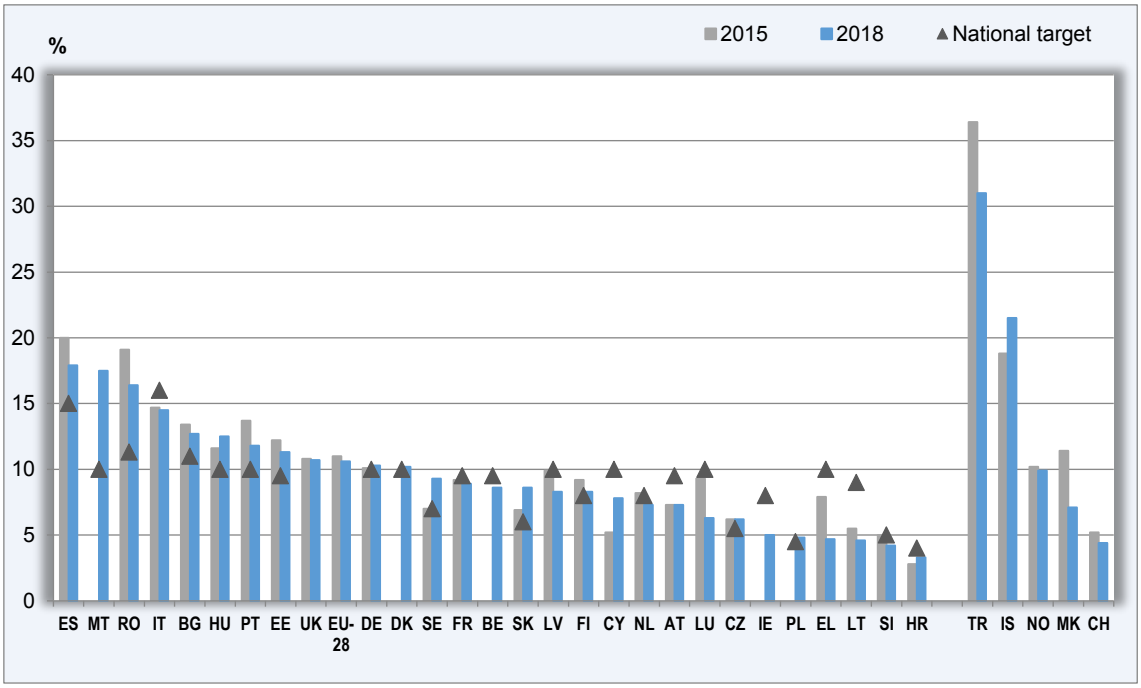
28. How many young people leave education and training too early?

Indicator 3010: early leavers from education and training

Reducing the EU average share of early leavers from education and training to below 10% of 18 to 24 year-olds is one of the specific objectives of the Europe 2020 strategy. Reducing early leaving will make young people better equipped with knowledge and skills for future challenges, including the transition from initial education and training to the labour market.

The 'early leavers from education and training' indicator is defined as the percentage of the population aged 18 to 24 who have attained, at most, lower secondary level education (ISCED 0-2) and who are not involved in formal or non-formal education or training.

Figure 28. **Early leavers from education and training (%)**



Source: Eurostat, EU labour force survey.

Key points

In 2018, early leavers from education and training accounted for 10.6% of the population aged 18 to 24 in the EU. This represented a fall of 0.4 percentage points since 2015. A remaining gap of 0.6 percentage points has to be narrowed by 2020 to meet the target established for the EU average (10% or lower). Levels of early leaving at 5% or less can be observed in Croatia, Slovenia, Lithuania, Greece, Portugal and

Ireland. The highest shares of early leavers from education and training (above 15%) are found in Spain, Malta and Romania.

Many countries have set their own national target, sometimes more ambitious than the overall Europe 2020 target, in other cases less so. By 2018, 13 countries had reached their national target (Belgium, Ireland, Greece, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Netherlands, Austria and Slovenia).

In most Member States, the percentage of early leavers from education and training fell or remained the same between 2015 and 2018. The exceptions are Cyprus (+2.6 percentage points), Sweden (+2.3 percentage points), Slovakia (+1.7 percentage points), Hungary (+0.9 percentage points), Croatia (+0.5 percentage points) and Germany (+0.2 percentage points). Due to breaks in time series, 2018 data for Belgium, Denmark, Ireland, Malta and Poland cannot be compared with those for 2015.

Among non-EU countries, early leaving from education and training in 2018 was highest in Turkey (31%) and lowest in Switzerland (4.4%). Only Turkey and Iceland have a share of early school leavers that is higher than the EU average.

Table 28. **Early leavers from education and training (%)**

Country code	Country	2015		2018		Recent change			Target
		Value	Flag	Value	Flag	Range	Country	EU-28	
EU-28	European Union (28)	11.0		10.6		'15-'18	-0.4		10.0
BE	Belgium			8.6	b	'15-'18			9.5
BG	Bulgaria	13.4		12.7		'15-'18	-0.7	-0.4	11.0
CZ	Czechia	6.2		6.2		'15-'18	0.0	-0.4	5.5
DK	Denmark			10.2	b	'15-'18			10.0
DE	Germany	10.1		10.3		'15-'18	0.2	-0.4	10.0
EE	Estonia	12.2		11.3		'15-'18	-0.9	-0.4	9.5
IE	Ireland			5.0	b	'15-'18			8.0
EL	Greece	7.9		4.7		'15-'18	-3.2	-0.4	10.0
ES	Spain	20.0		17.9		'15-'18	-2.1	-0.4	15.0
FR	France	9.2		8.9		'15-'18	-0.3	-0.4	9.5
HR	Croatia	2.8	u	3.3		'15-'18	0.5	-0.4	4.0
IT	Italy	14.7		14.5		'15-'18	-0.2	-0.4	16.0
CY	Cyprus	5.2		7.8		'15-'18	2.6	-0.4	10.0
LV	Latvia	9.9		8.3		'15-'18	-1.6	-0.4	10.0
LT	Lithuania	5.5		4.6		'15-'18	-0.9	-0.4	9.0
LU	Luxembourg	9.3		6.3		'15-'18	-3.0	-0.4	10.0
HU	Hungary	11.6		12.5		'15-'18	0.9	-0.4	10.0
MT	Malta			17.5	b	'15-'18			10.0
NL	Netherlands	8.2		7.3		'15-'18	-0.9	-0.4	8.0
AT	Austria	7.3		7.3		'15-'18	0.0	-0.4	9.5
PL	Poland			4.8	b	'15-'18			4.5
PT	Portugal	13.7		11.8		'15-'18	-1.9	-0.4	10.0
RO	Romania	19.1		16.4		'15-'18	-2.7	-0.4	11.3
SI	Slovenia	5.0		4.2		'15-'18	-0.8	-0.4	5.0
SK	Slovakia	6.9		8.6		'15-'18	1.7	-0.4	6.0
FI	Finland	9.2		8.3		'15-'18	-0.9	-0.4	8.0
SE	Sweden	7.0		9.3		'15-'18	2.3	-0.4	7.0
UK	United Kingdom	10.8		10.7		'15-'18	-0.1	-0.4	
IS	Iceland	18.8		21.5		'15-'18	2.7	-0.4	
MK	North Macedonia	11.4		7.1		'15-'18	-4.3	-0.4	
NO	Norway	10.2		9.9		'15-'18	-0.3	-0.4	
CH	Switzerland	5.2		4.4		'15-'18	-0.8	-0.4	
TR	Turkey	36.4		31.0		'15-'18	-5.4	-0.4	

(b) Eurostat: 'break in time series'.
(u) Eurostat: 'low reliability'.
Source: Eurostat, EU labour force survey.

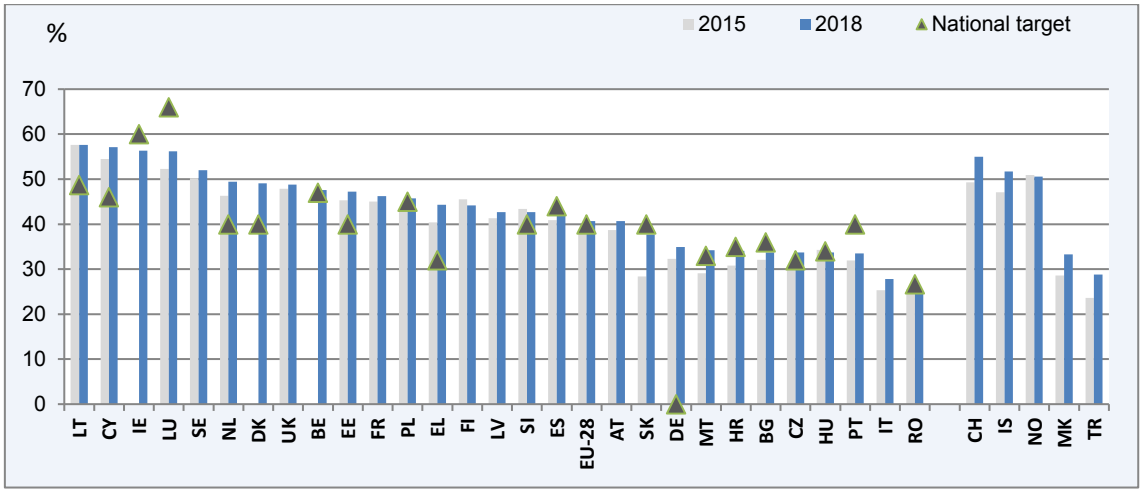
29. How many young people have a tertiary level qualification?

Indicator 3020: 30 to 34 year-olds with tertiary attainment

Increasing the share of 30 to 34 year-olds with tertiary level education attainment is one of the specific objectives of the Europe 2020 strategy. A benchmark of at least 40% has been agreed for the EU average. While acknowledging the equal importance of medium-level vocational education and training, raising tertiary education attainment among young people is expected to support targeted research and innovation-oriented smart growth. This will also help meet the increasing demand for a highly qualified work force. Having a high education level is also related to a number of beneficial outcomes for individuals, such as a lower risk of being unemployed.

The indicator is defined as the percentage of the population aged 30 to 34 who have successfully completed tertiary level education. Tertiary level education programmes are defined as those classified to ISCED 5-8.

Figure 29. **30 to 34 year-olds with tertiary attainment (%)**



Source: Eurostat, EU labour force survey.

Key points

In 2018, 40.7% of people aged 30 to 34 in the EU had attained tertiary level, indicating that the EU has met its 2020 target of 40%. The highest levels of tertiary education attainment were reported in Lithuania, Cyprus, Ireland and Luxembourg (more than 55% in 2018). In contrast, in Romania and Italy, fewer than 30% of 30 to 34 year-olds had tertiary level attainment. Several countries have national targets. By 2018, 11 countries had reached their national target (Belgium, Czechia, Denmark, Estonia, Greece, Cyprus, Lithuania, Malta, Netherlands, Poland and Slovenia). For seven countries, the national targets cannot be evaluated by the current indicator.

The share of 30 to 34 year-olds with high-level education attainment increased, from 38.7% in 2015 to 40.7% in 2018 in the EU. The increase occurred in almost all EU Member States (the largest rises were experienced by Slovakia and Malta). Drops were reported in Hungary, Romania, Slovenia and Finland, where the share of 30 to 34 year-olds with tertiary attainment fell by up to 1.3 percentage points over the same period. Due to breaks in time series, data for Belgium, Denmark and Ireland cannot be reliably compared with those for 2015.

Among non-EU countries, in 2018, the share of 30 to 34 year-olds with tertiary attainment was highest in Switzerland (55%), followed by Iceland (51.7%) and Norway (50.6%). Much lower values were estimated in Turkey (28.8%) and North Macedonia (33.3%).

Table 29. **30 to 34 year-olds with tertiary attainment (%)**

Country code	Country	2015		2018		Recent change			Target
		Value	Flag	Value	Flag	Range	Country	EU-28	
EU-28	European Union (28)	38.7		40.7		'15-'18	2.0		40.0
BE	Belgium			47.6	b	'15-'18			47.0
BG	Bulgaria	32.1		33.7		'15-'18	1.6	2.0	36.0
CZ	Czechia	30.1		33.7		'15-'18	3.6	2.0	32.0
DK	Denmark			49.1	b	'15-'18			40.0
DE	Germany	32.3		34.9		'15-'18	2.6	2.0	T
EE	Estonia	45.3		47.2		'15-'18	1.9	2.0	40.0
IE	Ireland			56.3	b	'15-'18			60.0
EL	Greece	40.4		44.3		'15-'18	3.9	2.0	32.0
ES	Spain	40.9		42.4		'15-'18	1.5	2.0	44.0
FR	France	45.0		46.2		'15-'18	1.2	2.0	T
HR	Croatia	30.8		34.1		'15-'18	3.3	2.0	35.0
IT	Italy	25.3		27.8		'15-'18	2.5	2.0	T
CY	Cyprus	54.5		57.1		'15-'18	2.6	2.0	46.0
LV	Latvia	41.3		42.7		'15-'18	1.4	2.0	T
LT	Lithuania	57.6		57.6		'15-'18	0.0	2.0	48.7
LU	Luxembourg	52.3		56.2		'15-'18	3.9	2.0	66.0
HU	Hungary	34.3		33.7		'15-'18	-0.6	2.0	34.0
MT	Malta	29.1		34.2		'15-'18	5.1	2.0	33.0
NL	Netherlands	46.3		49.4		'15-'18	3.1	2.0	40.0
AT	Austria	38.7		40.7		'15-'18	2.0	2.0	T
PL	Poland	43.4		45.7		'15-'18	2.3	2.0	45.0
PT	Portugal	31.9		33.5		'15-'18	1.6	2.0	40.0
RO	Romania	25.6		24.6		'15-'18	-1.0	2.0	26.7
SI	Slovenia	43.4		42.7		'15-'18	-0.7	2.0	40.0
SK	Slovakia	28.4		37.7		'15-'18	9.3	2.0	40.0
FI	Finland	45.5		44.2		'15-'18	-1.3	2.0	T
SE	Sweden	50.2		52.0		'15-'18	1.8	2.0	T
UK	United Kingdom	47.9		48.8		'15-'18	0.9	2.0	
IS	Iceland	47.1		51.7		'15-'18	4.6	2.0	
MK	North Macedonia	28.6		33.3		'15-'18	4.7	2.0	
NO	Norway	50.9		50.6		'15-'18	-0.3	2.0	
CH	Switzerland	49.3		55.0		'15-'18	5.7	2.0	
TR	Turkey	23.6		28.8		'15-'18	5.2	2.0	

(b) Eurostat: 'break in time series'.

(T) DE: target 42% (including ISCED 4); FR: target 50% (17-33 year-olds); IT: target 26-27%; LV: target 34-36%; AT: target 38% (including ISCED 4); FI: target 42% (narrow national definition); SE: target 45-50%.

Source: Eurostat, EU labour force survey.

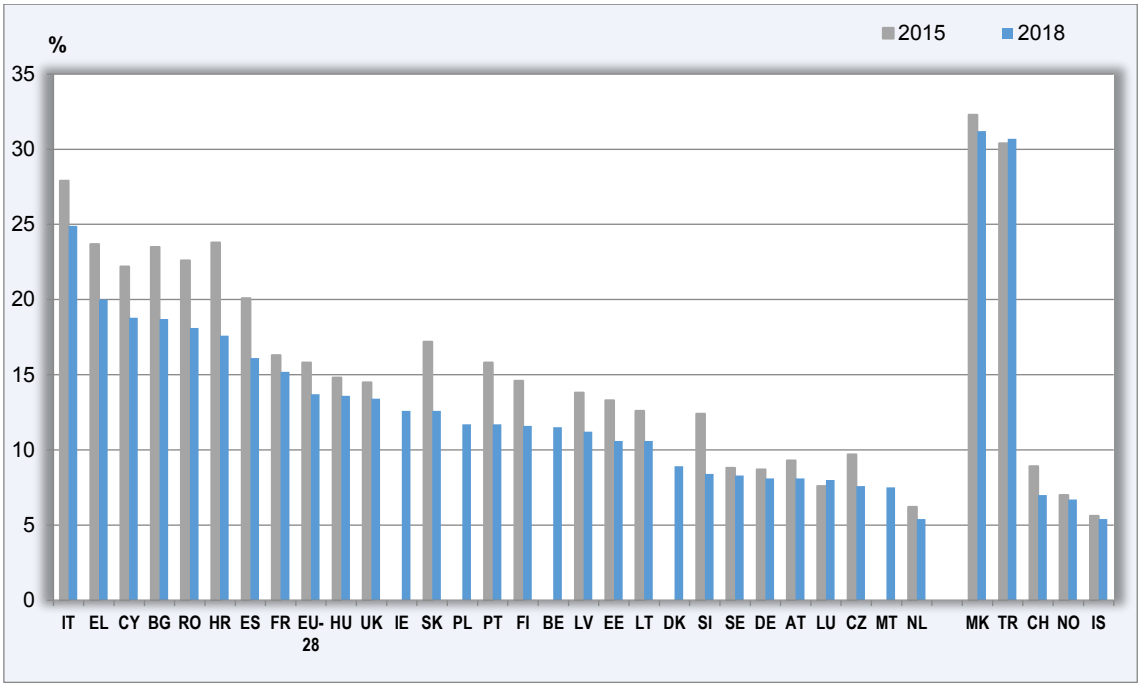
30. How many young people are not in employment, education or training?

Indicator 3030: NEET rate for 18 to 24 year-olds

Reducing the number of NEETs is an explicit policy objective of the EU Youth guarantee. This initiative aims to ensure that all young people receive a good-quality offer of employment, continued education, apprenticeship or traineeship within four months of becoming unemployed or leaving formal education.

The indicator below is the NEET rate, defined as the share of 18 to 24 year-olds not in employment, education or training. Young people are considered to be NEET, if they are not employed and if they have not received any education or training in the four weeks preceding the European labour force survey.

Figure 30. **NEET rate for 18 to 24 year-olds (%)**



Source: Eurostat, EU labour force survey.

Key points

In 2018, the EU average NEET rate was 13.7%. It was the highest in Italy at 24.9% and Greece reported the second highest rate at 20%. Lowest values were estimated for the Netherlands, Malta, Czechia, Luxembourg, Austria, Germany Sweden, Slovenia, and Denmark (all with NEET rates at 10% or below) in 2018. Between 2015 and 2018, the EU average NEET rate fell slightly from 15.8% to 13.7%; it decreased in most countries. Due to break in time series, 2018 data for Belgium, Denmark, Ireland, Malta and Poland cannot be reliably compared to those for 2015.

Among non-EU countries, Turkey and North Macedonia recorded NEET rates higher than 30%, while Iceland, Norway and Switzerland had rates below 10%.

Table 30. **NEET rate for 18 to 24 year-olds (%)**

Country code	Country	2015		2018		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	15.8		13.7		'15-'18	-2.1	
BE	Belgium			11.5	b	'15-'18		
BG	Bulgaria	23.5		18.7		'15-'18	-4.8	-2.1
CZ	Czechia	9.7		7.6		'15-'18	-2.1	-2.1
DK	Denmark			8.9	b	'15-'18		
DE	Germany	8.7		8.1		'15-'18	-0.6	-2.1
EE	Estonia	13.3		10.6		'15-'18	-2.7	-2.1
IE	Ireland			12.6	b	'15-'18		
EL	Greece	23.7		20.0		'15-'18	-3.7	-2.1
ES	Spain	20.1		16.1		'15-'18	-4.0	-2.1
FR	France	16.3		15.2		'15-'18	-1.1	-2.1
HR	Croatia	23.8		17.6		'15-'18	-6.2	-2.1
IT	Italy	27.9		24.9		'15-'18	-3.0	-2.1
CY	Cyprus	22.2		18.8		'15-'18	-3.4	-2.1
LV	Latvia	13.8		11.2		'15-'18	-2.6	-2.1
LT	Lithuania	12.6		10.6		'15-'18	-2.0	-2.1
LU	Luxembourg	7.6		8.0		'15-'18	0.4	-2.1
HU	Hungary	14.8		13.6		'15-'18	-1.2	-2.1
MT	Malta			7.5	b			
NL	Netherlands	6.2		5.4		'15-'18	-0.8	-2.1
AT	Austria	9.3		8.1		'15-'18	-1.2	-2.1
PL	Poland			11.7	b			
PT	Portugal	15.8		11.7		'15-'18	-4.1	-2.1
RO	Romania	22.6		18.1		'15-'18	-4.5	-2.1
SI	Slovenia	12.4		8.4		'15-'18	-4.0	-2.1
SK	Slovakia	17.2		12.6		'15-'18	-4.6	-2.1
FI	Finland	14.6		11.6		'15-'18	-3.0	-2.1
SE	Sweden	8.8		8.3		'15-'18	-0.5	-2.1
UK	United Kingdom	14.5		13.4		'15-'18	-1.1	-2.1
IS	Iceland	5.6		5.4		'15-'18	-0.2	-2.1
MK	North Macedonia	32.3		31.2		'15-'18	-1.1	-2.1
NO	Norway	7.0		6.7		'15-'18	-0.3	-2.1
CH	Switzerland	8.9		7.0		'15-'18	-1.9	-2.1
TR	Turkey	30.4		30.7		'15-'18	0.3	-2.1

(b) Eurostat: 'break in time series'.

Source: Eurostat, EU labour force survey.

31. How likely are young people to be unemployed?

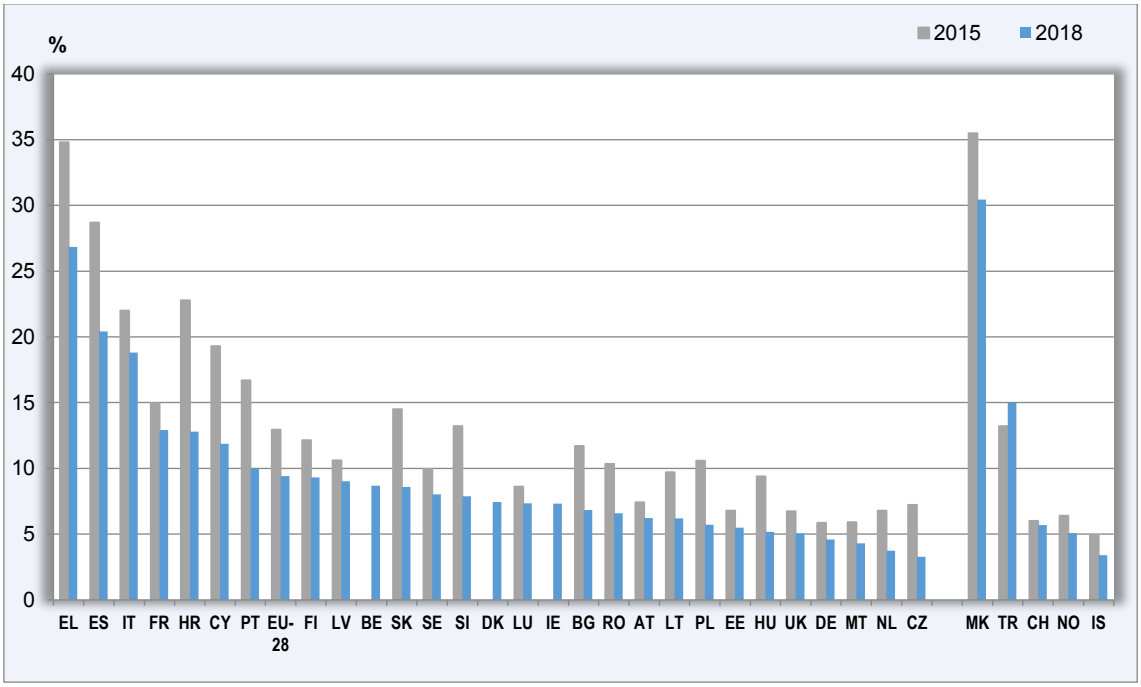
Indicator 3040: unemployment rate for 20 to 34 year-olds

EU policy aims to make the transition from education to employment for young people as successful as possible. This transition has consequences for progression through the labour market over the lifecycle.

The youth unemployment rate reflects the difficulties some young people face in making the transition from school to work. While it is generally calculated for those aged 15 to 24, the indicator below focuses on the 20 to 34 age group. By doing this, the indicator also considers later entry into the labour market due to young people staying longer in initial education and training. The indicator excludes the age group 15 to 19, where active participation in the labour market is relatively small (with many individuals being in education and training).

The indicator is defined as the percentage of the active population (20 to 34 years old) who are unemployed: these are individuals without a job, actively looking for one, and readily available to start work. The active population is defined as the population either employed or unemployed: it excludes the economically inactive (those not working and not looking for a job).

Figure 31. **Unemployment rate for 20 to 34 year-olds (%)**



Source: Cedefop calculations based on Eurostat, EU labour force survey.

Key points

In 2018, the EU average unemployment rate for 20 to 34 year-olds was estimated at 9.4%. The highest rate was reported by Greece (26.8%), followed by Spain (20.4%), and Italy (18.8%). In contrast, Czechia (3.3%), the Netherlands (3.7%), Malta (4.3%) and Germany (4.6%), had the lowest rates in 2018 (all below 5%).

The EU average unemployment rate for 20 to 34 year-olds dropped from 12.9% in 2015 to 9.4% in 2018. A fall could be observed in all EU Member States for which data can be safely compared. It was greatest in Croatia (-10 percentage points), Spain (-8.3 percentage points), Greece (-7.9 percentage points), Cyprus (-7.4 percentage points), and Portugal (-6.7 percentage points). Break in time series occurred in Belgium, Denmark and Ireland, so their data for 2018 cannot be reliably compared with those for 2015.

Among the non-EU countries considered, North Macedonia had the highest unemployment rate for 20 to 34 year-olds in 2018 (at 30.4%), followed by Turkey (15%), with both countries above the EU average. In Norway, Switzerland and Iceland, the indicator was lower than 6%.

Table 31. **Unemployment rate for 20 to 34 year-olds (%)**

Country code	Country	2015		2018		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	12.9		9.4		'15-'18	-3.5	
BE	Belgium			8.7	b	'15-'18		
BG	Bulgaria	11.7		6.8		'15-'18	-4.9	-3.5
CZ	Czechia	7.2		3.3		'15-'18	-3.9	-3.5
DK	Denmark			7.4	b	'15-'18		
DE	Germany	5.9		4.6		'15-'18	-1.3	-3.5
EE	Estonia	6.8		5.5		'15-'18	-1.3	-3.5
IE	Ireland			7.3	b	'15-'18		
EL	Greece	34.8		26.8		'15-'18	-7.9	-3.5
ES	Spain	28.7		20.4		'15-'18	-8.3	-3.5
FR	France	15.0		12.9		'15-'18	-2.0	-3.5
HR	Croatia	22.8		12.8		'15-'18	-10.0	-3.5
IT	Italy	22.0		18.8		'15-'18	-3.2	-3.5
CY	Cyprus	19.3		11.9		'15-'18	-7.4	-3.5
LV	Latvia	10.6		9.0		'15-'18	-1.6	-3.5
LT	Lithuania	9.7		6.2		'15-'18	-3.5	-3.5
LU	Luxembourg	8.6		7.4		'15-'18	-1.3	-3.5
HU	Hungary	9.4		5.2		'15-'18	-4.2	-3.5
MT	Malta	5.9		4.3		'15-'18	-1.6	-3.5
NL	Netherlands	6.8		3.7		'15-'18	-3.0	-3.5
AT	Austria	7.4		6.2		'15-'18	-1.2	-3.5
PL	Poland	10.6		5.7		'15-'18	-4.9	-3.5
PT	Portugal	16.7		10.0		'15-'18	-6.7	-3.5
RO	Romania	10.3		6.6		'15-'18	-3.8	-3.5
SI	Slovenia	13.2		7.9		'15-'18	-5.3	-3.5
SK	Slovakia	14.5		8.6		'15-'18	-5.9	-3.5
FI	Finland	12.1		9.3		'15-'18	-2.8	-3.5
SE	Sweden	9.9		8.0		'15-'18	-1.9	-3.5
UK	United Kingdom	6.7		5.0		'15-'18	-1.7	-3.5
IS	Iceland	4.9		3.4		'15-'18	-1.5	-3.5
MK	North Macedonia	35.5		30.4		'15-'18	-5.0	-3.5
NO	Norway	6.4		5.1		'15-'18	-1.3	-3.5
CH	Switzerland	6.0		5.7		'15-'18	-0.3	-3.5
TR	Turkey	13.2		15.0		'15-'18	1.8	-3.5

(b) Eurostat: 'break in time series'.

Source: Cedefop calculations based on Eurostat, EU labour force survey.

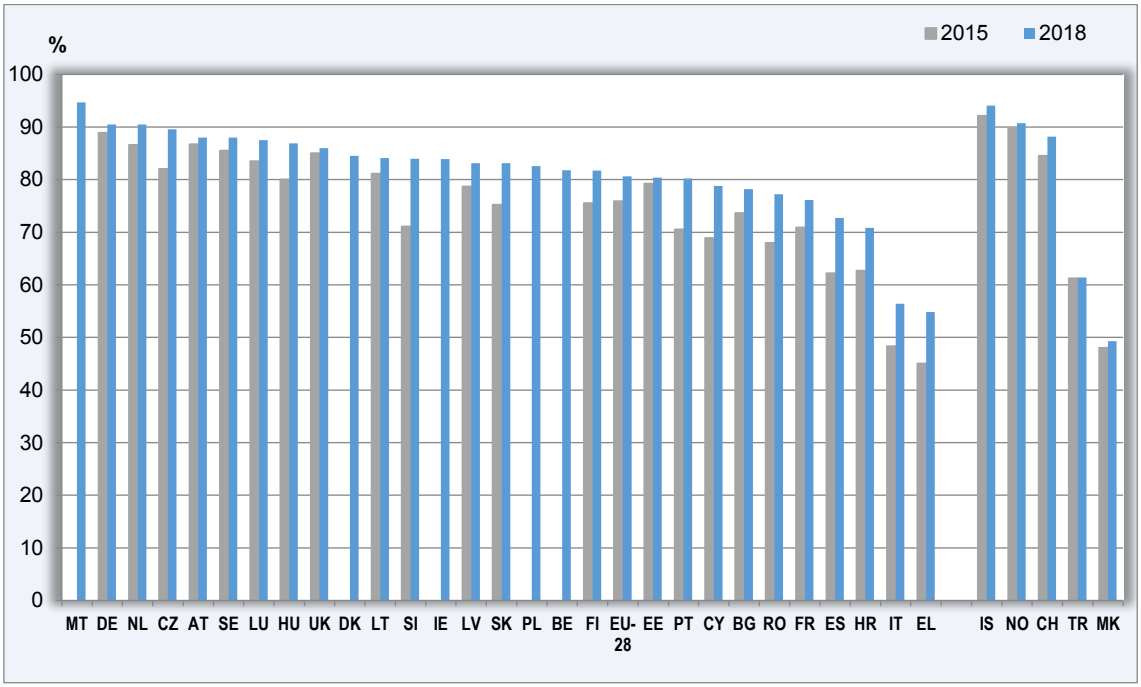
32. How many recent graduates are employed?

Indicator 3045: Employment rate of recent graduates

By 2020, the EU aims to achieve an employment rate for young recent graduates of at least 82% (Council of the European Union, 2012).

The indicator is defined as the employment rate for the young population (aged 20 to 34) who graduated one, two and three years before the reference year, obtaining qualifications at ISCED 3-8 and who are not currently enrolled in any further education or training activity.

Figure 32. **Employment rate of recent graduates (%)**



Source: Eurostat, EU labour force survey.

Key points

In 2018, in the EU, the employment rate for young recent graduates was 80.6%. This was 1.4 percentage points below the EU target of 82%. The highest rate was reported by Malta (94.7%), followed by Germany (90.5%) and the Netherlands (90.5%). In contrast, Greece (54.8%) and Italy (56.4%) had the lowest rates in 2018. Except for these two, employment rates in the other EU Member States were higher than 70%.

Between 2015 and 2018, the unemployment rate for young recent graduates in the EU grew by 4.7 percentage points. The growth occurred in almost all countries for which data can be compared and was highest in Greece, Spain, Cyprus, Portugal, Romania and Slovenia (increase by more than 9 percentage points). Due to breaks in

time series, 2018 data for Belgium, Denmark, Ireland, Malta and Poland cannot be reliably compared to those for 2015.

Among the non-EU countries, in 2018, North Macedonia (48%) and Turkey (61.2%) had values below the EU average. By contrast, values for Iceland (94.1%) Norway (90.7%) and Switzerland (88.2%) were higher than the EU average.

Table 32. **Employment rate of recent graduates (%)**

Country code	Country	2015		2018		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	75.9		80.6		'15-'18	4.7	
BE	Belgium			81.8	b	'15-'18		
BG	Bulgaria	73.6		78.2		'15-'18	4.6	4.7
CZ	Czechia	82.0		89.6		'15-'18	7.6	4.7
DK	Denmark			84.5	b	'15-'18		
DE	Germany	88.9		90.5		'15-'18	1.6	4.7
EE	Estonia	79.2		80.4		'15-'18	1.2	4.7
IE	Ireland			83.9	b	'15-'18		
EL	Greece	45.0		54.8		'15-'18	9.8	4.7
ES	Spain	62.2		72.7		'15-'18	10.5	4.7
FR	France	70.9		76.1		'15-'18	5.2	4.7
HR	Croatia	62.7		70.8		'15-'18	8.1	4.7
IT	Italy	48.3		56.4		'15-'18	8.1	4.7
CY	Cyprus	68.9		78.8		'15-'18	9.9	4.7
LV	Latvia	78.7		83.1		'15-'18	4.4	4.7
LT	Lithuania	81.1		84.1		'15-'18	3.0	4.7
LU	Luxembourg	83.5		87.5		'15-'18	4.0	4.7
HU	Hungary	80.0		86.9		'15-'18	6.9	4.7
MT	Malta			94.7	b	'15-'18		
NL	Netherlands	86.6		90.5		'15-'18	3.9	4.7
AT	Austria	86.7		88.0		'15-'18	1.3	4.7
PL	Poland			82.6	b	'15-'18		
PT	Portugal	70.5		80.2		'15-'18	9.7	4.7
RO	Romania	68.0		77.2		'15-'18	9.2	4.7
SI	Slovenia	71.1		84.0		'15-'18	12.9	4.7
SK	Slovakia	75.2		83.1		'15-'18	7.9	4.7
FI	Finland	75.5		81.7		'15-'18	6.2	4.7
SE	Sweden	85.5		88.0		'15-'18	2.5	4.7
UK	United Kingdom	85.0		86.0		'15-'18	1.0	4.7
IS	Iceland	92.1		94.1		'15-'18	2.0	4.7
MK	North Macedonia	48.0		49.3		'15-'18	1.3	4.7
NO	Norway	89.7		90.7		'15-'18	1.0	4.7
CH	Switzerland	84.5		88.2		'15-'18	3.7	4.7
TR	Turkey	61.2		61.4		'15-'18	0.2	4.7

(b) Eurostat: 'break in time series'.

Source: Eurostat, EU labour force survey.

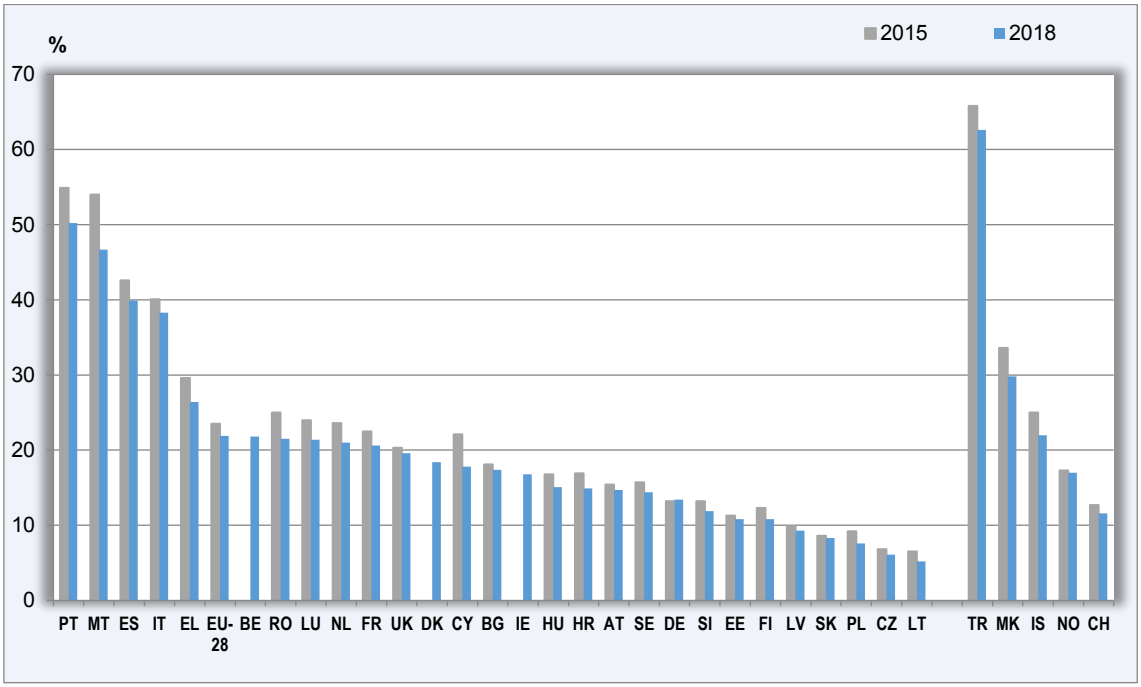
33. How many adults have a low level of education?

Indicator 3050: adults with lower level education attainment

Educational attainment is related to a number of career aspects, such as the chances of being in employment and wage levels.

The indicator reported here is defined as the share of adults (aged 25 to 64) with low education (at most a lower secondary qualification, ISCED 2 or below).

Figure 33. **Adults with lower level of educational attainment (%)**



Source: Eurostat, EU labour force survey.

Key points

In 2018, in the EU, 21.9% of people aged 25 to 64 had a low level of education (ISCED 2 or below). In 2018, the highest percentage was estimated for Portugal (at 50.2%), followed by Malta (46.7%). The lowest percentages across EU Member States were observed in Lithuania, Czechia, Poland, Slovakia and Latvia (below 10% in 2018).

Between 2015 and 2018, the percentage of adults with low educational attainment fell by 1.6 percentage points in the EU as a whole and a fall occurred in most EU Member States. Due to break in time series, 2018 data for Belgium, Denmark and Ireland cannot be reliably compared to those for 2015.

Among the non-EU countries under consideration, the lowest share was found in Switzerland (11.6%) and the highest in Turkey (62.6%).

Table 33. **Adults with lower level of educational attainment (%)**

Country code	Country	2015		2018		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	23.5		21.9		'15-'18	-1.6	
BE	Belgium			21.8	b	'15-'18		
BG	Bulgaria	18.1		17.4		'15-'18	-0.7	-1.6
CZ	Czechia	6.8		6.1		'15-'18	-0.7	-1.6
DK	Denmark			18.4	b	'15-'18		
DE	Germany	13.2		13.4		'15-'18	0.2	-1.6
EE	Estonia	11.3		10.8		'15-'18	-0.5	-1.6
IE	Ireland			16.8	b	'15-'18		
EL	Greece	29.6		26.4		'15-'18	-3.2	-1.6
ES	Spain	42.6		39.9		'15-'18	-2.7	-1.6
FR	France	22.5		20.6		'15-'18	-1.9	-1.6
HR	Croatia	16.9		14.9		'15-'18	-2.0	-1.6
IT	Italy	40.1		38.3		'15-'18	-1.8	-1.6
CY	Cyprus	22.1		17.8		'15-'18	-4.3	-1.6
LV	Latvia	9.9		9.3		'15-'18	-0.6	-1.6
LT	Lithuania	6.5		5.2		'15-'18	-1.3	-1.6
LU	Luxembourg	24.0		21.4		'15-'18	-2.6	-1.6
HU	Hungary	16.8		15.1		'15-'18	-1.7	-1.6
MT	Malta	54.0		46.7		'15-'18	-7.3	-1.6
NL	Netherlands	23.6		21.0		'15-'18	-2.6	-1.6
AT	Austria	15.4		14.7		'15-'18	-0.7	-1.6
PL	Poland	9.2		7.6		'15-'18	-1.6	-1.6
PT	Portugal	54.9		50.2		'15-'18	-4.7	-1.6
RO	Romania	25.0		21.5		'15-'18	-3.5	-1.6
SI	Slovenia	13.2		11.9		'15-'18	-1.3	-1.6
SK	Slovakia	8.6		8.3		'15-'18	-0.3	-1.6
FI	Finland	12.3		10.8		'15-'18	-1.5	-1.6
SE	Sweden	15.7		14.4		'15-'18	-1.3	-1.6
UK	United Kingdom	20.3		19.6		'15-'18	-0.7	-1.6
IS	Iceland	25.0		22.0		'15-'18	-3.0	-1.6
MK	North Macedonia	33.6		29.8		'15-'18	-3.8	-1.6
NO	Norway	17.3		17.0		'15-'18	-0.3	-1.6
CH	Switzerland	12.7		11.6		'15-'18	-1.1	-1.6
TR	Turkey	65.8		62.6		'15-'18	-3.2	-1.6

(b) Eurostat: 'break in time series'.

Source: Eurostat, EU labour force survey.

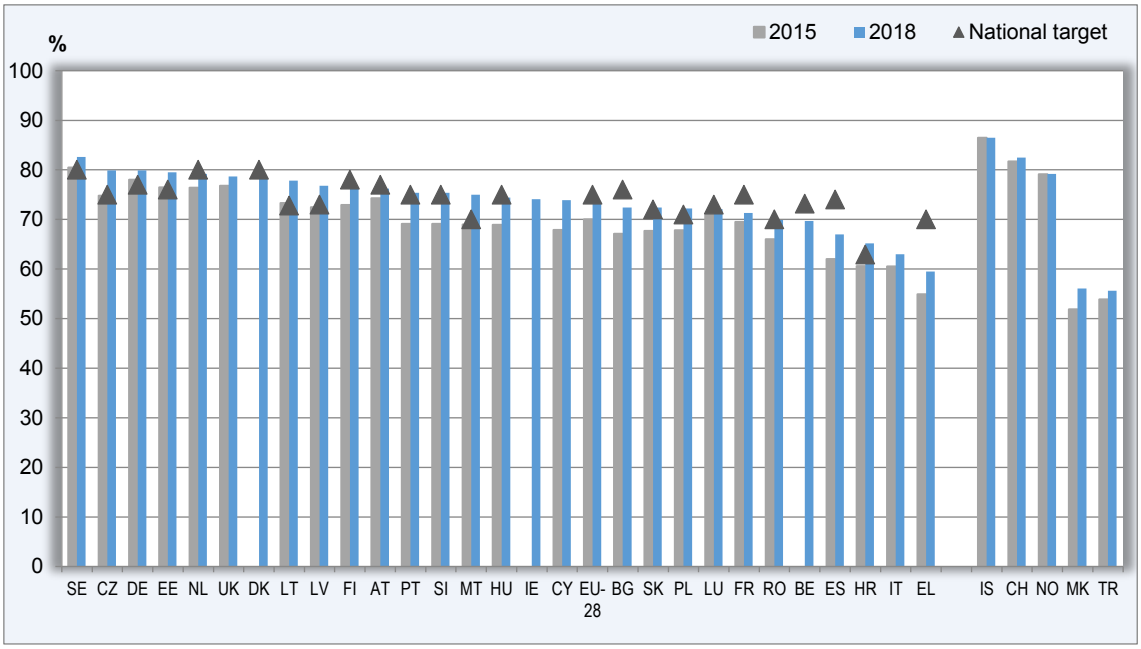
34. How many adults are employed?

Indicator 3060: employment rate for 20 to 64 year-olds

With VET, relevant skills are transferred to the labour market. In combination with job-rich economic growth, VET can lead to higher employment levels. Raising the EU average employment rate for 20 to 64 year-olds to at least 75% is one of the key targets of the Europe 2020 strategy to which VET can contribute.

The indicator below is the percentage of the population aged 20 to 64 who are employed. The employed population consists of those who, during the reference week, did any work for pay or profit for at least one hour, or were not working but had jobs from which they were temporarily absent.

Figure 34. **Employment rate for 20 to 64 year-olds (%)**



Source: Eurostat, EU labour force survey.

Key points

In 2018, the EU average employment rate for those aged 20 to 64 was 73.1%, 1.9 percentage points below the Europe 2020 target of 75%. In 2018, Sweden had the highest employment rate at 82.6%, followed by Czechia (79.9%), Germany (79.9%), Estonia (79.5) and the Netherlands (79.2%). The rate was the lowest in Greece (59.5%). Several countries have national targets for the employment rate of 20 to 64 year-olds. By 2018, 10 countries had reached their national target (Czechia, Germany, Estonia, Croatia, Latvia, Lithuania, Malta, Poland, Portugal, Slovenia, Slovakia, and Sweden).

Between 2015 and 2018, the EU average employment rate increased by 3.1 percentage points. The increase was greatest in Cyprus, Malta, Portugal and Slovenia (6 percentage points or more). Due to breaks in time series, 2018 data for Belgium, Denmark and Ireland cannot be reliably compared to those for 2015.

Among the non-EU countries for which data were available, North Macedonia (56.1%) and Turkey (55.6%) had the lowest employment rates (below that for Greece), while Iceland (86.5%) had an employment rate higher than any of the EU Member States.

Table 34. **Employment rate for 20 to 64 year-olds (%)**

Country code	Country	2015		2018		Recent change			Target
		Value	Flag	Value	Flag	Range	Country	EU-28	
EU-28	European Union (28)	70.0		73.1		'15-'18	3.1		75.0
BE	Belgium			69.7	b	'15-'18			73.2
BG	Bulgaria	67.1		72.4		'15-'18	5.3	3.1	76.0
CZ	Czechia	74.8		79.9		'15-'18	5.1	3.1	75.0
DK	Denmark			78.2	b	'15-'18			80.0
DE	Germany	78.0		79.9		'15-'18	1.9	3.1	77.0
EE	Estonia	76.5		79.5		'15-'18	3.0	3.1	76.0
IE	Ireland			74.1	b	'15-'18			T
EL	Greece	54.9		59.5		'15-'18	4.6	3.1	70.0
ES	Spain	62.0		67.0		'15-'18	5.0	3.1	74.0
FR	France	69.5		71.3		'15-'18	1.8	3.1	75.0
HR	Croatia	60.6		65.2		'15-'18	4.6	3.1	62.9
IT	Italy	60.5		63.0		'15-'18	2.5	3.1	T
CY	Cyprus	67.9		73.9		'15-'18	6.0	3.1	T
LV	Latvia	72.5		76.8		'15-'18	4.3	3.1	73.0
LT	Lithuania	73.3		77.8		'15-'18	4.5	3.1	72.8
LU	Luxembourg	70.9		72.1		'15-'18	1.2	3.1	73.0
HU	Hungary	68.9		74.4		'15-'18	5.5	3.1	75.0
MT	Malta	69.0		75.0		'15-'18	6.0	3.1	70.0
NL	Netherlands	76.4		79.2		'15-'18	2.8	3.1	80.0
AT	Austria	74.3		76.2		'15-'18	1.9	3.1	77.0
PL	Poland	67.8		72.2		'15-'18	4.4	3.1	71.0
PT	Portugal	69.1		75.4		'15-'18	6.3	3.1	75.0
RO	Romania	66.0		69.9		'15-'18	3.9	3.1	70.0
SI	Slovenia	69.1		75.4		'15-'18	6.3	3.1	75.0
SK	Slovakia	67.7		72.4		'15-'18	4.7	3.1	72.0
FI	Finland	72.9		76.3		'15-'18	3.4	3.1	78.0
SE	Sweden	80.5		82.6		'15-'18	2.1	3.1	80.0
UK	United Kingdom	76.8		78.7		'15-'18	1.9	3.1	
IS	Iceland	86.5		86.5		'15-'18	0.0	3.1	
MK	North Macedonia	51.9		56.1		'15-'18	4.2	3.1	
NO	Norway	79.1		79.2		'15-'18	0.1	3.1	
CH	Switzerland	81.7		82.5		'15-'18	0.8	3.1	
TR	Turkey	53.9		55.6		'15-'18	1.7	3.1	

(b) Eurostat: 'break in time series'.

(T) IE: target 69-71%; IT: target 67-69%; CY: target 75-77%.

Source: Eurostat, EU labour force survey.

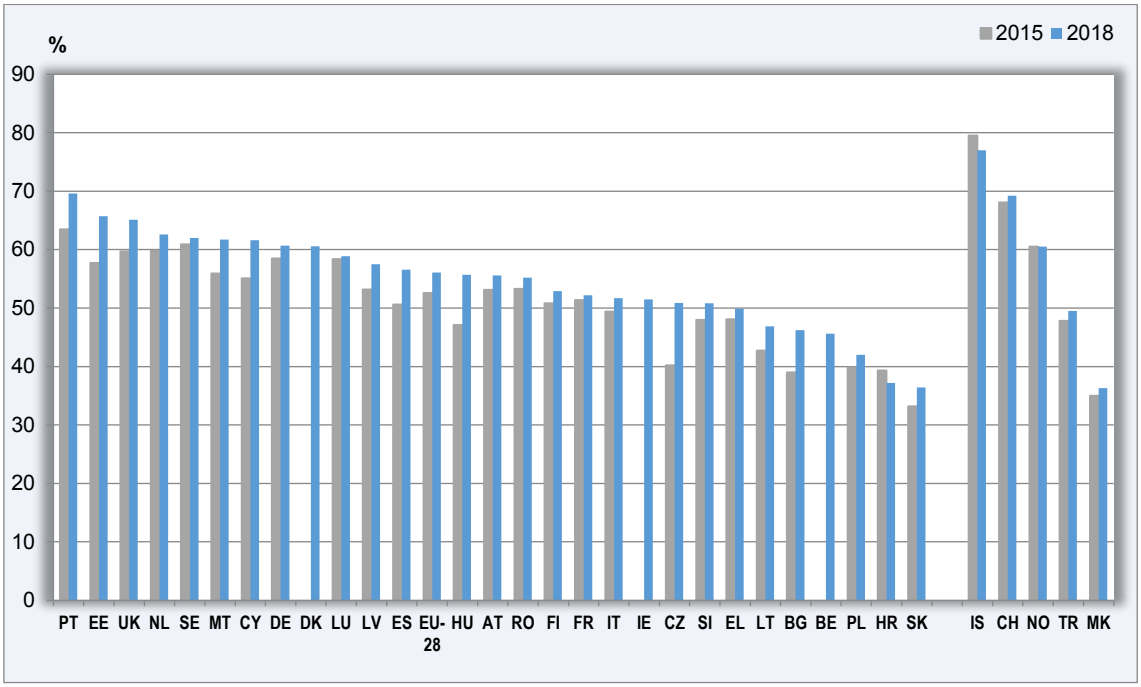
35. How many low-educated adults are employed?

Indicator 3065: employment rate for 20 to 64 year-olds with lower level of education attainment

Low educational attainment reduces adult employability and labour mobility. VET can be used to improve labour market prospects of low-educated adults, as a route to further skill development at the same or at higher educational levels.

The indicator below is the percentage of the population aged 20 to 64 with a low level of education attainment (ISCED 0-2) who are employed. It can be compared with indicator 3060 (employment rate for 20 to 64 year-olds).

Figure 35. **Employment rate for 20 to 64 year-olds with lower level of educational attainment (%)**



Source: Eurostat, EU labour force survey.

Key points

In 2018, the EU employment rate for low-educated adults was 56.1%, far below the average rate for all adults of the corresponding age group (73.1%). Portugal had the highest employment rate for low-educated adults at 69.6%, followed by Estonia (65.7%) and the United Kingdom (65.1%). The rate was the lowest in Slovakia (36.4%) and Croatia (37.2%).

Between 2015 and 2018 the EU employment rate for low-educated adults grew by 3.5 percentage points. An increase was reported by all EU Member States for which

data can be safely compared, except Croatia (-2.1 percentage points); it was greatest in Czechia (10.7 percentage points). Due to breaks in time series, 2018 data for Belgium, Denmark and Ireland cannot be reliably compared to those for 2015.

Among the non-EU countries, North Macedonia (36.3%) had the lowest employment rate for low-educated adults in 2018. This was lower than the rate for all the other EU Member States. In contrast, the employment rate in Iceland of 77% was higher than in any of the EU Member States.

Table 35. **Employment rate for 20 to 64 year-olds with lower level of educational attainment (%)**

Country code	Country	2015		2018		Recent change		
		Value	Flag	Value	Flag	Range	Country	EU-28
EU-28	European Union (28)	52.6		56.1		'15-'18	3.5	
BE	Belgium			45.6	b	'15-'18		
BG	Bulgaria	39.0		46.2		'15-'18	7.2	3.5
CZ	Czechia	40.2		50.9		'15-'18	10.7	3.5
DK	Denmark			60.6	b	'15-'18		
DE	Germany	58.5		60.7		'15-'18	2.2	3.5
EE	Estonia	57.7		65.7		'15-'18	8.0	3.5
IE	Ireland			51.5	b	'15-'18		
EL	Greece	48.1		49.9		'15-'18	1.8	3.5
ES	Spain	50.6		56.6		'15-'18	6.0	3.5
FR	France	51.4		52.2		'15-'18	0.8	3.5
HR	Croatia	39.3		37.2		'15-'18	-2.1	3.5
IT	Italy	49.4		51.7		'15-'18	2.3	3.5
CY	Cyprus	55.1		61.6		'15-'18	6.5	3.5
LV	Latvia	53.2		57.5		'15-'18	4.3	3.5
LT	Lithuania	42.7		46.9		'15-'18	4.2	3.5
LU	Luxembourg	58.4		58.9		'15-'18	0.5	3.5
HU	Hungary	47.1		55.7		'15-'18	8.6	3.5
MT	Malta	55.9		61.7		'15-'18	5.8	3.5
NL	Netherlands	59.8		62.6		'15-'18	2.8	3.5
AT	Austria	53.1		55.6		'15-'18	2.5	3.5
PL	Poland	39.8		42.0		'15-'18	2.2	3.5
PT	Portugal	63.5		69.6		'15-'18	6.1	3.5
RO	Romania	53.3		55.2		'15-'18	1.9	3.5
SI	Slovenia	48.0		50.8		'15-'18	2.8	3.5
SK	Slovakia	33.2		36.4		'15-'18	3.2	3.5
FI	Finland	50.8		52.9		'15-'18	2.1	3.5
SE	Sweden	60.9		62.0		'15-'18	1.1	3.5
UK	United Kingdom	59.7		65.1		'15-'18	5.4	3.5
IS	Iceland	79.5		77.0		'15-'18	-2.5	3.5
MK	North Macedonia	35.0		36.3		'15-'18	1.3	3.5
NO	Norway	60.5		60.5		'15-'18	0.0	3.5
CH	Switzerland	68.1		69.2		'15-'18	1.1	3.5
TR	Turkey	47.8		49.5		'15-'18	1.7	3.5

(b) Eurostat: 'break in time series'.

Source: Eurostat, EU labour force survey.

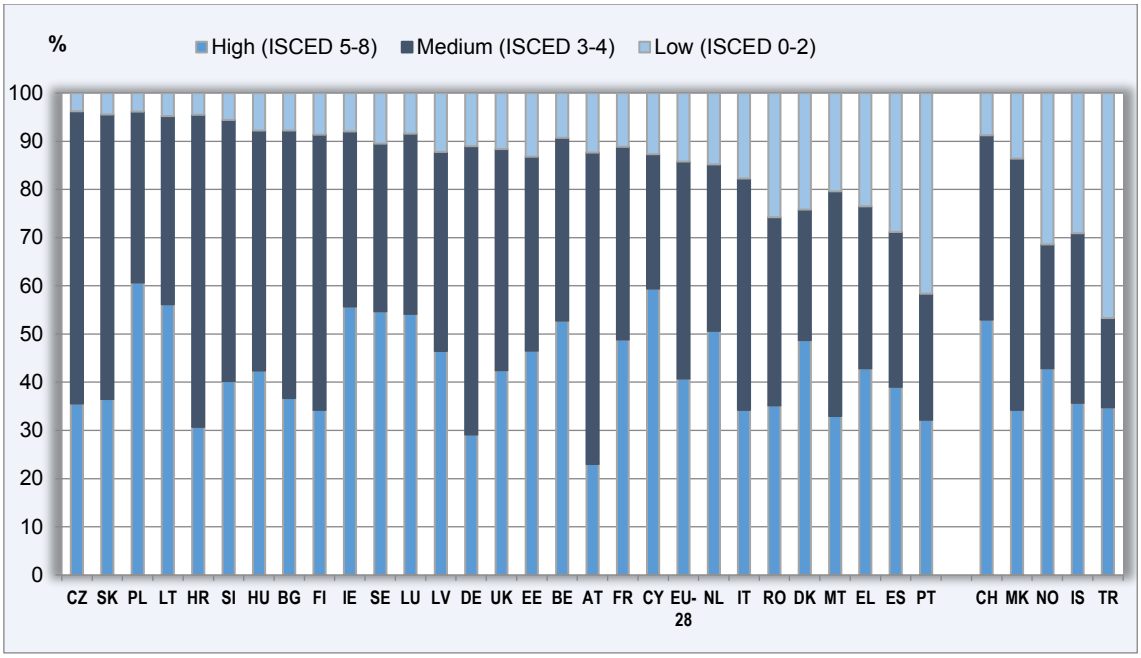
36. How many jobs will be taken by those with medium/high-level qualifications?

Indicator 3070: projected employment of those with medium/high-level qualifications (as a percentage of total employment)

Forecasts of future skill needs and potential skill mismatches can be informative for policy-makers, helping to make decisions on future investments in education and training.

The indicator below is defined as projected employment (in 2030) for individuals with medium (ISCED 3-4) and high-level (ISCED 5-8) qualifications (as % of total employment). Level of qualifications refers to the education level of individuals who are expected to be employed in 2030 but not meeting the education requirements of their jobs.

Figure 36. **Medium/high-qualified employment in 2030 (% of total) (2016 projection)**



Source: Cedefop medium-term projections of future skill demand.

Key points

Data from the Cedefop medium-term projections of future skill demand show that, in 2030, most of total employment in the EU (85.8%) is projected to be taken by individuals with medium- and high-level qualifications. Those with medium-level qualifications will continue to account for almost half of total employment (45%). Those with high-level qualifications will account for 40.8%. Only a remaining 14.2% of total employment will be left for individuals with low qualifications. In EU Member States, a

share of about 75% or more of total employment will be accounted for by those with medium- or high-level qualifications, except for Portugal (58.4%), Spain (71.2%) and Romania (74.2%)

Table 36. **Projected employment of those with medium/high-level qualifications (% of total employment), 2030**

Country code	Country	Medium / High		High		Medium		Low	
		Value	Flag	Value	Flag	Value	Flag	Value	Flag
EU-28	European Union (28)	85.8		40.8		45.0		14.2	
BE	Belgium	90.7		52.7		38.0		9.3	
BG	Bulgaria	92.2		36.7		55.5		7.8	
CZ	Czechia	96.2		35.6		60.6		3.8	
DK	Denmark	75.8		48.7		27.1		24.2	
DE	Germany	89.0		29.1		59.9		11.0	
EE	Estonia	86.8		46.5		40.3		13.2	
IE	Ireland	92.0		55.7		36.3		8.0	
EL	Greece	76.5		42.9		33.6		23.5	
ES	Spain	71.2		39.0		32.2		28.8	
FR	France	88.8		48.9		40.0		11.2	
HR	Croatia	95.5		30.7		64.8		4.5	
IT	Italy	82.3		34.2		48.1		17.7	
CY	Cyprus	87.3		59.4		27.9		12.7	
LV	Latvia	87.8		46.4		41.3		12.2	
LT	Lithuania	95.2		56.2		39.0		4.8	
LU	Luxembourg	91.6		54.2		37.4		8.4	
HU	Hungary	92.2		42.4		49.8		7.8	
MT	Malta	79.6		33.0		46.7		20.4	
NL	Netherlands	85.2		50.6		34.6		14.8	
AT	Austria	87.6		23.0		64.6		12.4	
PL	Poland	96.1		60.7		35.4		3.9	
PT	Portugal	58.4		32.2		26.2		41.6	
RO	Romania	74.2		35.2		39.1		25.8	
SI	Slovenia	94.5		40.2		54.2		5.5	
SK	Slovakia	95.5		36.5		59.0		4.5	
FI	Finland	91.4		34.3		57.1		8.6	
SE	Sweden	89.5		54.7		34.8		10.5	
UK	United Kingdom	88.4		42.5		45.9		11.6	
IS	Iceland	70.9		35.7		35.2		29.1	
MK	North Macedonia	86.4		34.2		52.2		13.6	
NO	Norway	68.6		42.9		25.7		31.4	
CH	Switzerland	91.2		53.0		38.3		8.8	
TR	Turkey	53.3		34.8		18.5		46.7	

NB: Forecast made in 2018.

Source: Cedefop medium-term projections of future skill demand.

Acronyms

AES	adult education survey
CIS	community innovation survey
CVET	continuing vocational education and training
CVT	continuing vocational training
CVTS	continuing vocational training survey
EWCS	European working conditions survey
ISCED	international standard classification of education
IVET	initial vocational education and training
LFS	European Union labour force survey
NEET	not in employment, education or training
PIAAC	Programme for the international assessment of adult competencies
UOE	UNESCO (United Nations Educational, Scientific and Cultural Organisation)/OECD (Organisation for Economic Cooperation and Development)/Eurostat (Statistical Office of the European Communities) joint data collection on education
VET	vocational education and training

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Annex

Short description of indicators

No	Label	Short description and general indication of the source	Baseline year	Year used for 'last available year' in charts and tables
1010	IVET students as % of all upper secondary students	Number of students in upper secondary IVET (ISCED 3) as a percentage of all upper secondary students (Cedefop calculations based on Eurostat, UOE) (a)	2015	2017
1020	IVET work-based students as % of all upper secondary IVET	Number of students in combined work- and school-based upper secondary IVET (ISCED 3) as a percentage of all students in upper secondary IVET. (Cedefop calculations based on Eurostat, UOE)(a)	2015	2017
1025	IVET students with direct access to tertiary education as % of all upper secondary IVET	Number of students in upper secondary IVET (ISCED 3) enrolled in programmes giving direct access to tertiary education as a percentage of all students in upper secondary IVET. (Cedefop calculations based on Eurostat, UOE) (a)	2015	2017
1030	Workers participating in CVT courses (%)	Number of participants in employer-sponsored CVT courses during the reference calendar year (12 months) as a percentage of all persons employed in all enterprises surveyed. (Eurostat, CVTS)	2015	2015
1040	Workers participating in on-the-job training (%)	Number of participants in on-the-job training during the last 12 months as a percentage of all workers. (Eurofound, EWCS)	2015	2015
1050	Adults in lifelong learning (%)	Percentage of the population aged 25-64 participating in education and training over the four weeks prior to the survey. (Eurostat, LFS)	2015	2018
1060	Enterprises providing training (%)	Percentage of enterprises providing any type of vocational training to their staff during the reference calendar year (12 months). (Eurostat, CVTS)	2015	2015
1070	Female IVET students as % of all female upper secondary students	Number of female students in upper secondary IVET (ISCED 3) as a percentage of all female students in upper secondary education. (Cedefop calculations based on Eurostat, UOE) (a)	2015	2017
1075	Workers of small firms participating in CVT courses (%)	Number of persons employed in small enterprises who have participated in employer-sponsored CVT courses during the reference calendar year (12 months) as a percentage of all persons employed in all small enterprises surveyed (small enterprises covered by the survey are those from 10 to 49 employees). (Eurostat, CVTS)	2015	2015
1080	Young VET graduates in further education and training (%)	Percentage of the population aged 18-24 with a medium-level vocational qualification (ISCED 3 or 4) as their highest educational attainment who participated in education and training over four weeks prior to the survey. (Cedefop calculations based on Eurostat, LFS) (a)(b)	2015	2018
1090	Older adults in lifelong learning (%)	Percentage of the population aged 50-64 who participated in education and training over the four weeks prior to the survey. (Cedefop calculations based on Eurostat, LFS) (a)	2015	2018

No	Label	Short description and general indication of the source	Baseline year	Year used for 'last available year' in charts and tables
1100	Low-educated adults in lifelong learning (%)	Percentage of the population aged 25-64 with lowest level of educational attainment (ISCED 0-2) who participated in education and training over the four weeks prior to the survey. (Eurostat, LFS)	2015	2018
1110	Unemployed adults in lifelong learning (%)	Percentage of the unemployed population aged 25-64 who participated in education and training over the four weeks prior to the survey. (Eurostat, LFS)	2015	2018
1120	Individuals who wanted to participate in training but did not (%)	Percentage of individuals aged 25-64 wanting to participate in education or training but did not do so. (Eurostat, AES)	2016	2016
1130	Job-related non-formal education and training (%)	Non-formal job-related learning activities as % of all non-formal learning activities. The indicator considers activities carried out in the 12 months prior to the survey by adults aged 25-64. (Eurostat, AES)	2015	2016
2010	IVET public expenditure (% of GDP)	Annual public expenditure on vocational education at upper secondary and post-secondary level (ISCED 3 and 4) as a percentage of GDP. (Eurostat, UOE) (a)	2015	2016
2025	IVET public expenditure per student (1000 PPS units)	Annual public expenditure per student (FTE) in vocational upper secondary or post-secondary non-tertiary education (ISCED 3 and 4) in purchasing parity standard units (PPS) per student enrolled. The number of students enrolled used for the calculations is adjusted to the coverage of expenditure data and expressed in full-time equivalent (FTE). (Eurostat, UOE) (a)	2015	2016
2030	Enterprise expenditure on CVT courses as % of total labour cost	Total monetary expenditure (TME) by enterprises on CVT courses as % of total labour cost (all enterprises). TME indicator excludes personnel absence costs. (Cedefop calculations based on Eurostat, CVTS)	2015	2015
2040	Average number of foreign languages learned in IVET	Average number of foreign languages learned in vocational upper secondary education (ISCED 3). (Eurostat, UOE) (a)	2015	2017
2050	STEM graduates from upper secondary IVET (% of total)	STEM (science, technology, engineering and mathematics) graduates from upper secondary vocational education (ISCED 3) as percentage of all upper secondary graduates across all vocational subjects. (Cedefop calculations based on Eurostat, UOE) (a)	2015	2017
2065	Short-cycle VET graduates as % of first-time tertiary education graduates	Short-cycle tertiary VET graduates (ISCED 554) as a percentage of all graduates from first programmes at tertiary level of education (ISCED 544, 554; 645, 655, 665; 646, 656, 666; 746, 756, 766). Annual outflows. (Cedefop calculations based on Eurostat, UOE) (a)	2015	2017
2070	Innovative enterprises with supportive training practices (%)	Enterprises providing training to their staff to support technological innovation (as % of all enterprises reporting technological innovation in core innovation sectors). (Eurostat, CIS) (a)	2016	2016
2080	Employment rate for IVET graduates (20-34 year-olds)	Employment rate of 20-34 year-olds not in (formal or non-formal) education and training during the past four weeks and having a medium-level qualification (ISCED 3 or 4) from the VET stream as their highest educational attainment. (Eurostat, LFS)	2015	2018

No	Label	Short description and general indication of the source	Baseline year	Year used for 'last available year' in charts and tables
2090	Employment premium for IVET graduates (over general stream)	Premium expressed as a difference (in percentage points) between two indicators: the employment rate for young VET graduates (indicator 2080) and the employment rate for young graduates (20-34 year-olds) from the general stream of education at the same ISCED levels. Calculations exclude those still in (formal or non-formal) education and training. (Cedefop calculations based on Eurostat, LFS)	2015	2018
2100	Employment premium for IVET graduates (over low-educated)	Premium expressed as a difference (in percentage points) between two indicators: the employment rate for young VET graduates (indicator 2080) and the employment rate for young graduates (20-34 year-olds) who have at most lower secondary education (ISCED 0-2) as their highest level of educational attainment. Calculations exclude those still in (formal or non-formal) education and training. (Cedefop calculations based on Eurostat, LFS) (a)	2015	2018
2110	Workers helped to improve their work by training (%)	Individuals who answered 'Strongly agree' or 'Tend to agree' to the statement 'The training has helped me improve the way I work' as a percentage of all surveyed workers who participated in training paid by their employer of by themselves. (Eurofound, EWCS) (a)(b)	2015	2015
2120	Workers with skills matched to their duties (%)	Percentage of employed people surveyed who answered 'My present skills correspond well with my duties' to the question 'Which of the following alternatives would best describe your skills in your own work?'. Other possible answers are 'I need further training to cope well with my duties', 'I have the skills to cope with more demanding duties'.(Eurofound, EWCS) (a)	2015	2015
3010	Early leavers from education and training (%)	Percentage of the population aged 18-24 who have completed, at most, lower secondary education and are not involved in further education or training. (Eurostat, LFS)	2015	2018
3020	30-34 year-olds with tertiary attainment (%)	Percentage of the population aged 30-34 who have successfully completed tertiary-level education. Tertiary education is defined as ISCED 5 and higher. (Eurostat, LFS)	2015	2018
3030	NEET rate for 18-24 year-olds (%)	Percentage of the population of age 18-24 years not employed and not involved in further education or training. (Eurostat, LFS)	2015	2018
3040	Unemployment rate for 20-34 year-olds (%)	Unemployment rate (%) of 20-34 year-olds. (Cedefop calculations based on Eurostat, LFS)	2015	2018
3045	Employment rate of recent graduates (%)	Share of the employed population among those having all the following characteristics: a) are aged between 20 and 34 years old; b) have an educational attainment at least at upper secondary level; c) graduated 1, 2 and 3 years before the reference year; d) are not currently enrolled in any further education or training activity. (Eurostat, LFS)	2015	2018
3050	Adults with lower level of educational attainment (%)	Percentage of the population aged 25-64 who have completed, at most, lower secondary education (ISCED 0-2). (Eurostat, LFS)	2015	2018
3060	Employment rate for 20-64 year-olds (%)	Percentage of the population aged 20-64 in employment. (Eurostat, LFS)	2015	2018

No	Label	Short description and general indication of the source	Baseline year	Year used for 'last available year' in charts and tables
3065	Employment rate for 20-64 year-olds with lower level of educational attainment (%)	Percentage of the population aged 20-64 and with lower level of educational attainment (ISCED 0-2) in employment. (Eurostat, LFS)	2015	2018
3070	Medium/high-qualified employment in 2030 (% of total)	Share of total employment accounted for by individuals with medium- (ISCED 3-4) or high-level (ISCED 5 and above) qualifications in 30. Level of qualifications refers to the educational attainment of individuals who will be employed and not to the educational requirements of their jobs. (Cedefop forecasts)	2030	2030

(a) EU averages are weighted averages of available country data; (b) Data supplied at Cedefop request.

Additional notes

All indicators and breakdowns in this report are subject to the specific methodology of the source from which they originate.

For indicators and related breakdowns derived from the LFS and the UOE data collection on education systems, the definitions used for levels, orientations and access to higher levels of formal education are those agreed in ISCED 2011. By using the first digit of the classification, ISCED 2011 distinguishes and defines the following levels of education:

ISCED 2011 levels of education	
Level 0 -	Early childhood education
Level 1 -	Primary education
Level 2 -	Lower secondary education
Level 3 -	Upper secondary education
Level 4 -	Post-secondary non-tertiary education
Level 5 -	Short-cycle tertiary education
Level 6 -	Bachelor or equivalent level
Level 7 -	Master or equivalent level
Level 8 -	Doctor or equivalent level

At levels 2 to 5, by using the second digit of the classification, ISCED 2011 distinguishes and defines general and vocational orientation:

ISCED 2011 orientations	
Vocational orientation	Designed for learners to acquire the knowledge, skills and competencies specific to a particular occupation, trade, or class of occupations or trades. Such programmes may have work-based components (e.g. apprenticeships, dual-system education programmes). Successful completion of such programmes leads to labour market-relevant, vocational qualifications acknowledged as occupationally oriented by the relevant national authorities and/or the labour market.
General orientation	Designed to develop learners' general knowledge, skills and competencies, as well as literacy and numeracy skills, often to prepare participants for more advanced education programmes at the same or a higher ISCED level and to lay the foundation for lifelong learning. These programmes are typically school- or college-based. General education includes education programmes that are designed to prepare participants for entry into vocational education but do not prepare for employment in a particular occupation, trade, or class of occupations or trades, nor lead directly to a labour market-relevant qualification.

At higher levels of education, ISCED 2011 does not distinguish between general and vocational education. It considers but does not yet define a distinction between academic and professional education, which is therefore not used in this report. The third digit of ISCED 2011 is used in indicator 1025 as it allows distinguishing between upper secondary vocational programmes with or without direct access to tertiary programmes at levels 5, 6 or 7. The third digit is also used in indicator 2065 to account properly for level completion and first degrees (long and short first degrees) in the calculation of the indicator.

Indicator 1020 considers enrolments in combined work- and school-based VET as opposed to mainly school-based VET (UOE, 2016). A programme is classified as 'combined work- and school-based' if 25% or more of the curriculum is presented outside the school environment. Programmes where the work-based component accounts for 90% or more of the curriculum are excluded from the UOE data collection. Under these conditions, apprenticeships are included in work-based IVET.

CVTS indicators on employer-sponsored CVET refer to education and training paid for (at least partly) by the employer. Partial payment includes the use of paid working time for training.

Lifelong learning indicators from the LFS refer to adult participation in formal and non-formal education and training in the four weeks prior to the survey; the non-formal component includes participation in courses, seminars, conferences or private lessons or instructions outside the regular education system.

In some cases, such as indicators from sample surveys (e.g. LFS), ISCED levels are aggregated to compute indicators. Aggregations used are: ISCED 0-2 (low educational attainment); ISCED 3-4 (medium educational attainment); ISCED 5-8 (tertiary educational attainment). Individuals whose highest level of education derives from completion of ISCED 3 programmes of duration of less than two years are considered as having low educational attainment. Contrary to ISCED 1997, ISCED 2011 no longer provides for the category of pre-vocational education and no aggregation is needed to derive an exhaustive and mutually exclusive distinction between general and vocational education.

On the way to 2020: data for vocational education and training policies

Indicator overviews
2019 update

European policy-making in vocational education and training (VET) needs to be supported by sound evidence. In this report, Cedefop has selected a set of 36 indicators to quantify some key aspects of VET and lifelong learning. The selection was based on the indicators' policy relevance and their importance in achieving the Europe 2020 objectives.
This publication should be regarded as a tool to help policy-makers better understand and assess VET developments in each country. While this set of indicators does not claim to assess national systems or policies, they could be used to reflect on country situations and progress towards the strategic objectives set for Europe.
The indicators present statistical information about all European Union Member States as well as Iceland, North Macedonia, Norway, Switzerland and Turkey. The report selects and presents developments over time to the best possible extent at the time of its preparation.

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